

Water Management Plan

Riverfront Park Redevelopment
Spokane, Washington

for

City of Spokane Parks and Recreation

August 19, 2016



GEOENGINEERS 
Earth Science + Technology

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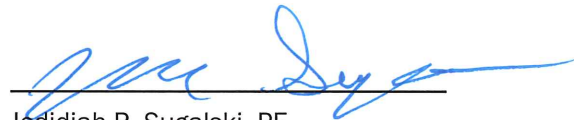
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ACRONYMS AND ABBREVIATIONS

AO – administrative order

BMPs – best management practices

BTEX – Benzene, toluene, ethylbenzene, and xylene

COCs – contaminants of concern

cPAHs – carcinogenic polycyclic aromatic hydrocarbons

CSWGP – Construction Stormwater General Permit

DMR – discharge monitoring report

DO – dissolved oxygen

Ecology – Washington State Department of Ecology

EPA – U.S. Environmental Protection Agency

ESA – Environmental Site Assessment

gpm – gallons per minute

IDA – industrial discharge agreement

LID – low impact development

MFD – media filter drains

µg/L – micrograms per liter

mg/L – milligrams per liter

MS4 – municipal separate storm sewer system

NAVD88 – North American Vertical Datum of 1988

NTU – nephelometric turbidity units

PAHs – polycyclic aromatic hydrocarbons

PCBs – polychlorinated biphenyls

POTW – publically owned treatment works

SMC – City of Spokane Municipal Code

SMP – Soil Management Plan

SRSM – Spokane Regional Stormwater Manual

SWPPP – Stormwater Pollution Prevention Plan

su – standard units

TMDL – total maximum daily load

TSS – total suspended solids

TTO – total toxic organics

UIC – underground injection control

WMP – Water Management Plan

WSDOT – Washington State Department of Transportation

1.0 INTRODUCTION

This Water Management Plan (WMP) provides guidance to manage stormwater and groundwater during and after construction activities associated with redevelopment at Riverfront Park in downtown Spokane, Washington (herein referred to as the “Redevelopment Projects” and/or “subject property”). The redevelopment project includes multiple projects throughout the 56-acre park, which are expected to occur through 2020.

The subject property is shown relative to surrounding physical features on the Vicinity Map, Figure 1. Subject property layout is shown on the Site Plan, Figure 2.

This plan was developed to provide consolidated information to manage water interactions at the subject property during design and construction of any redevelopment projects. The objectives of the plan are to:

- Provide background information on the site;
- Identify water interactions at the subject property;
- Identify discharge options for each interaction;
- Provide effluent monitoring criteria for each discharge option;
- Identify water quality treatment options (if needed) to meet permit requirements for discharge options; and
- Identify best management practices (BMPs) to treat post construction stormwater in accordance with the April 2008 *Spokane Regional Stormwater Manual* (SRSM).

2.0 BACKGROUND

The site is located at 507 North Howard Street in Spokane, Washington. The site is bounded by Spokane Falls Boulevard to the south, Post Street to the west, Washington and Division Streets to the east and the Spokane River and Mallon Avenue to the north. The property is currently owned by the City and is a public park. The site includes Havermale Island, Canada Island, and the portions of Riverfront Park on the north and south banks of the Spokane River.

Development at the subject property began in the late 1870s and primarily included mixed industrial uses and railroad activities. In 1973, the subject property underwent construction as the current park in preparation for Expo 1974. Historical records indicate that many of the historical areas were covered with fill as part of park construction and remnant impacts from industrial activities were generally unknown. Our understanding of the subject property, the comprised parcels, and historic uses of each is based on the results of our Phase I Environmental Site Assessment (ESA) for the subject property completed for the City (GeoEngineers 2014).

Soil sampling conducted in support of the Ice Ribbon and Skyride Terminal, Loeff Carousell and contractor access road for the Howard Street bridge replacement has identified the presence of petroleum hydrocarbons, metals and polycyclic aromatic hydrocarbons (PAHs) in soil within the estimated disturbed area (GeoEngineers 2016a, 2016b, 2016c). In addition, a Phase I ESA for the park identified multiple

industrial uses at the site prior to Expo 1974, and as a result there is a potential for widespread contamination throughout the site.

To address handling contaminated soil during construction activities, a soil management plan (SMP) was developed to assist with characterizing soil and identifying appropriate use and disposal methods (GeoEngineers 2016b). Soil characterization categories described in the SMP (Clean, Impacted and Contaminated) are referenced in this WMP.

Special considerations must be undertaken when dealing with water at the site during construction as a result of known soil contamination at the park. This includes handling both potentially contaminated groundwater and preventing contamination of site stormwater and groundwater during construction. Water discharged from the site must meet specific regulatory requirements and must be regularly monitored in compliance with discharge location permits.

Much of the existing soil at Riverfront Park is expected to remain after construction and special considerations need to be considered for designing post construction stormwater infrastructure. Water which infiltrates into the subsurface has a potential to travel through contaminated soil and eventually discharge to the Spokane River. Design consideration must be taken to avoid directing concentrated stormwater flows through contaminated soil. Design of area approved stormwater BMPs for post construction stormwater and discharge to alternate locations like the Spokane River should be considered.

3.0 WATER INTERACTIONS

Anticipated water interactions at Riverfront Park include:

- Construction stormwater;
- Construction dewatering;
- Post construction groundwater; and
- Post construction stormwater.

Water discharges from the site must not cause or contribute to a violation of surface water quality standards (Chapter 173-201A WAC), groundwater quality standards (Chapter 173-200 WAC), sediment management standards (Chapter 173-204 WAC), and human health criteria in National Toxics Rule (40 CFR Part 131.36). The following sections provide information on each interaction.

3.1. Construction Stormwater

Construction stormwater must be controlled, captured and contained on site. Construction stormwater can be discharged to the Publically Owned Treatment Works (POTW) or Spokane River if concentrations are in accordance with respective permits for the discharge location. Stormwater quality will generally be unknown until sampling occurs and steps should be taken to minimize contact with contaminant sources and discharge volumes. For all discharge options, sediment removal BMPs must be implemented at a minimum. Effluent Discharge Evaluation Criteria, Figure 3 should be used to identify the most cost effective discharge option.

In accordance with the Construction Stormwater General Permit (CSWGP), a Stormwater Pollution Prevention Plan (SWPPP) for construction activities must be developed for each redevelopment project regardless of where stormwater is discharged. The SWPPP must include BMPs to prevent erosion and sedimentation and identify, reduce, eliminate or prevent stormwater contamination and water pollution as a result of construction activities. BMPs should be developed to prevent stormwater from contacting impacted or contaminated soil as defined in the site SMP (GeoEngineers 2016b). This includes covering soil stockpiles with plastic sheeting to prevent stormwater from contacting impacted or contaminated soil and becoming contaminated.

The SWPPP should identify specific BMPs to apply all known and reasonable methods to prevent construction stormwater from becoming contaminated, control and collect construction stormwater and treat construction stormwater (if needed). The SWPPP should be developed in accordance with the SRSM (Spokane County 2008), Construction Stormwater General Permit (Ecology 2015) and supplemental Administrative Orders (AOs) and Eastern Washington Stormwater Management Manual (Ecology 2004).

When possible, stormwater during construction should be allowed to infiltrate into the subsurface if it accumulates in excavations and disturbed areas. If accumulated stormwater must be discharged off-site, it should be discharged to the POTW or Spokane River in accordance with the respective permits. Discharges to the POTW have restrictions on the maximum flow rate and discharges are prohibited during periods of precipitation or when precipitation is anticipated. Discharges to the Spokane River have more restrictive water quality limits, but are not limited by volume or flow. Figure 3 provides a flow chart to assist with evaluating discharge locations.

3.2. Construction Dewatering

If dewatering of excavations is necessary during construction, the water should be sent to the POTW or Spokane River. Figure 3 should be used to identify the most cost effective discharge option. Discharges to the POTW must be in accordance with the Industrial Discharge Agreement (IDA) in Appendix A. Discharges to the Spokane River must be in accordance with the CSWGP (Appendix B) and supplemental AOs to be issued by the Washington State Department of Ecology (Ecology). Pre-treatment of construction dewatering effluent might be required to comply with permit requirements. Before discharging effluent to either the POTW or Spokane River, the effluent should be tested in accordance with the preferred discharge regulatory permit. Discharges to the POTW have restriction on flow rates, including a maximum flow rate and discharges during periods of precipitation or anticipated precipitation are prohibited.

If dewatering activities are anticipated for a specific aspect of construction, a groundwater monitoring well(s) could be installed to characterize the effluent before conducting dewatering activities. Groundwater samples can be obtained from monitoring well(s) to characterize the dewatering effluent, and tests can be completed to estimate pumping rates and groundwater drawdown. Installing monitoring wells ahead of time will assist with identifying suitable discharge locations and levels of pre-treatment (if needed).

If a groundwater monitoring well is not installed to characterize the effluent before discharge, then the contractor should be prepared to install the necessary dewatering infrastructure and test the effluent in accordance with the permit for the preferred discharge location. If the discharge does not meet the permit requirements of the preferred discharge location, pre-treatment will be required. In all instances, minimal treatment to remove total suspended solids (TSS) such as sedimentation ponds or tanks should be implemented to minimize sediments discharged into the POTW or Spokane River. Batch discharge is

required for discharge to the POTW and sufficient storage volume for the stormwater discharge will be needed before the effluent can be tested and discharged.

3.3. Post Construction Groundwater

Groundwater is present in some areas of the park. Groundwater generally occurs above the shallow bedrock within the park and groundwater levels are most likely influenced by river levels, precipitation and drainage of upgradient impermeable areas. Groundwater in the south bank area is anticipated at Elevation 1,970.5 North American Vertical Datum of 1988 (NAVD88).

If subsurface structures are anticipated or installed below the groundwater table, they should be sufficiently waterproofed to discourage water from accumulating in the structure. In addition, elements to counteract hydrostatic uplift forces should be incorporated into the design. Because of the presence of soil contamination at the site, there is a potential for groundwater to be contaminated. If permanent dewatering systems for subsurface structures is required, the water should be disposed in accordance with local, state and federal regulations and permitting agencies. Pre-treatment for permanent dewatering effluent might be required to comply with permits; for this reason and because of the transitory condition of the groundwater, permanent dewatering should be discouraged if not avoided.

A groundwater well should be installed and permanently maintained to characterize the anticipated effluent of a permanent dewatering system. The groundwater well can be used to estimate flow rates and identify initial contaminants of concern (COCs). Permanent dewatering infrastructure will need to be permitted through the appropriate agency, dependent upon the preferred discharge location. Figure 3 should be used to identify the most cost effective discharge option when infiltration is not available. Groundwater should be sampled and analyzed in accordance with anticipated discharge agreements, and periodic monitoring may also be required.

3.4. Post Construction Stormwater

Phase I ESAs and additional characterization completed for redevelopment projects at the site have indicated there is a high likelihood for encountering contaminated soil at Riverfront Park. Typical stormwater discharge methods for the Spokane Region utilizing infiltration are not appropriate where contamination at the infiltration area is present or where infiltrated water may flow laterally into contaminated soil. Stormwater discharge must not cause or contribute to a violation of surface water quality standards (Chapter 173-201A WAC), groundwater quality standards (Chapter 173-200 WAC), sediment management standards (Chapter 173-204 WAC), and human health criteria in National Toxics Rule (40 CFR Part 131.36).

Infiltrating stormwater into contaminated soils could lead to violations of the referenced water quality standards. To avoid the potential to violate water quality standards, permanent stormwater management should involve discharging stormwater to the municipal separate storm sewer system (MS4), POTW, Spokane River, or low impact development (LID) BMPs. Design considerations for treatment of site stormwater after construction are provided in Section 7.0. Stormwater discharge from the site should be visually inspected for turbidity and oil sheens on a regular basis.

4.0 WATER DISCHARGE OPTIONS

The following sections provide information and regulatory guidelines for discharge of water to one of three locations: ground, POTW and the Spokane River. Infiltration into the subsurface at the site is the preferred discharge alternative, however the presence of soil contamination at the site generally prohibits installation of infiltration infrastructure. Effluent discharge evaluation criteria is provided on Figure 3. Figure 3 should be used to identify the most cost effective discharge option when infiltration is not available.

4.1. Discharge to Ground (Infiltration)

The preferred method of water management is on-site infiltration. Soil sampling and analysis at the park has indicated the presence of impacted and contaminated soil at the site and much of the soil is expected to remain after construction. Concentrated discharges must not be infiltrated through contaminated soils to avoid violating groundwater quality (Chapter 173-200 WAC) and surface water quality (Chapter 173-201A WAC) standards.

Because of identified and anticipated contamination throughout the site, permanent on-site infiltration of stormwater and dewatering water is unlikely and should not be anticipated. If an infiltration discharge is desired, the soil at the infiltration site should be tested in accordance with the SMP. After the water is infiltrated into the subsurface, it has the potential to migrate from the infiltration site. Based on the presence of shallow bedrock in the area, most groundwater will eventually discharge to the Spokane River. If infiltration is desired, a “clean” path to the Spokane River should be demonstrated and/or designed and constructed to show that concentrated infiltrated water flows will not pass through contaminated soil before it reaches the river.

Stormwater (precipitation) which falls over open areas and into temporary excavations can infiltrate into the subsurface, however stormwater should not be directed or concentrated to infiltration areas during or after construction. Water discharges to ground through an injection well must comply with applicable underground injection control (UIC) regulations.

4.2. Discharge to Spokane River

Allowable discharges to the Spokane River include construction dewatering, construction stormwater and permanent stormwater discharges. Discharges to the Spokane River during construction are permitted through a CSWGP (Appendix B). Permanent discharges to the Spokane River after construction are discussed in Section 7.0. A CSWGP is required for each redevelopment project as they are part of the larger common plan that disturbs more than 1 acre to redevelop Riverfront Park and discharges stormwater to surface waters of the state. Instructions for applying for a CSWGP are provided in Sections S2 of the CSWGP.

Because of known soil contamination at Riverfront Park, a supplemental AO will accompany each CSWGP. Initial discussions with Ecology indicate that supplemental effluent testing will be required to monitor for site specific COCs (in addition to those in the CSWGP). Site specific COCs will be assigned indicator levels by Ecology through the AO. If analytical results indicate that the effluent doesn't meet the indicator levels, then a review implemented BMP effectiveness and maintenance should be conducted and additional BMPs implemented if applicable. If the effluent can't meet the indicator levels using site BMPs, then water treatment technologies must be designed and implemented to maintain the discharge to the Spokane River. Water treatment technologies are discussed in Section 6.0.

Discharges to the Spokane River will generally have more stringent effluent limits, but will not be limited by flow rates or volumes. Discharges to the Spokane River may occur continuously and will require periodic monitoring in accordance with the CSWGP and supplemental AO.

4.3. Discharge to POTW

Stormwater and dewatering discharges can be discharged in batches to the POTW through an IDA. An IDA has been established with the City's POTW for construction activities along the south bank (Appendix A) including the Ice Ribbon, Skyride Terminal, Howard Street Bridge replacement and access road. For permanent discharges to the POTW, an IDA will need to be established with the City. Permanent discharges to the POTW should be negotiated with the City before full design, as system conveyance capacity or other limiting factors might prohibit the discharge. Discharges to the POTW must meet the requirements of the IDA which are based upon the City of Spokane Municipal Code (SMC) Title 13, Chapter 13.03A, Section 13.03A.0204, Local limits.

When developing an IDA with the City's POTW, a specific discharge location to the POTW and anticipated flowrate will need to be identified. To develop an IDA with the POTW, contact Angela Tagnani with the Riverside Park Water Reclamation Facility Industrial Pretreatment Program (atagnani@spokanecity.org, 509.625.4620). A scope of work, anticipated flowrate (if known) and proposed point of discharge will need to be provided. A description of any chemicals being used or encountered in the scope of work is also required.

Discharges to the POTW have less stringent effluent limits as opposed to discharges to the Spokane River; however, POTW discharges will have more restrictive flow limitations. For the IDA developed for the south bank projects, the discharge is limited to 250 gallons per minute (gpm) and discharge periods are limited to times when the precipitation forecast is less than 50 percent.

Discharges to the POTW must occur in batches and each batch must be sampled before the batch is discharged to the POTW. In addition, the first batch of an effluent stream must be tested for total toxic organics (TTO). A TTO list provided for the south bank projects is included in the IDA (Appendix A). If additional sources of water are added to the effluent stream, the discharge must be tested for TTO as part of the initial wastewater characterization. If TTO testing indicates the presence of previously unknown contaminants, additional monitoring and pretreatment might be required.

Discharges to the POTW must be metered and will incur a fee for each gallon discharged. Flow metering equipment must be installed to document the discharge volume to the POTW. When evaluating a discharge to the POTW, the flow rate limitations and costs associated with pretreatment and volumetric discharge fees should be considered. If monitoring indicates that the effluent does not meet the permit requirements, then alternative discharge locations or water treatment technologies will be required. Water treatment technologies are discussed in Section 6.0.

5.0 EFFLUENT MONITORING

Construction stormwater, construction dewatering and permeant dewatering systems must be monitored in accordance with respective permits governing the discharge location. This includes discharges to the POTW and Spokane River. The following sections provide information for characterizing water for offsite discharge.

Stormwater after construction should be managed by maintaining and implementing stormwater BMPs in accordance with the SRSM. If maintained and operated properly, sampling of post construction (permanent) stormwater discharged to the Spokane River is not anticipated, although stormwater discharges must not violate surface water quality standards (Chapter 173-201A WAC), groundwater quality standards (Chapter 173-200 WAC), sediment management standards (Chapter 173-204 WAC), and human health criteria in National Toxics Rule (40 CFR Part 131.36).

5.1. Discharge to Ground (Infiltration)

Temporary stormwater discharges to the ground surface at the site do not need to be characterized. Although effluent characterization is not necessary for discharges to ground, BMPs to prevent mixing with site contaminants in accordance with the SWPPP should be implemented and discharges must not violate surface water quality standards (Chapter 173-201A WAC), groundwater quality standards (Chapter 173-200 WAC), sediment management standards (Chapter 173-204 WAC), and human health criteria in National Toxics Rule (40 CFR Part 131.36).

5.2. Discharge to the Spokane River (During Construction Only)

During construction, stormwater can be discharged into the Spokane River if it meets the requirements of the CSWGP and supplemental AO. In accordance with the first AO issued for the project (Appendix B), stormwater must be captured, contained and treated prior to discharge to the Spokane River. The captured stormwater must be batch sampled prior to discharge to the Spokane River. Table 1 provides a summary of supplemental AO indicator levels provided in the first AO for the project. If indicator levels are exceeded, then additional treatment or disposal alternatives will be required. Stormwater which exceeds the indicator levels of the AO should not be discharged into the Spokane River. Grab samples of each batch must be representative of the effluent discharged to the river.

TABLE 1. SUPPLEMENTAL ADMINISTRATIVE ORDER EFFLUENT INDICATOR LEVELS

Parameter	Indicator Level	Sampling Frequency	Required Analytical Method
Acenaphthylene	0.6 µg/L	Weekly	EPA 625
Benzo(g,h,i)perylene	1.0 µg/L	Weekly	EPA 610 or 625
Fluoranthene	0.6 µg/L	Weekly	EPA 625
Phenanthrene	0.6 µg/L	Weekly	EPA 625
Pyrene	0.6 µg/L	Weekly	EPA 625
Benzo(a)anthracene	0.6 µg/L	Weekly	EPA 625
Benzo(b)fluoranthene	1.6 µg/L	Weekly	EPA 610 or 625
Benzo(k)fluoranthene	1.6 µg/L	Weekly	EPA 610 or 625
Benzo(a)pyrene	1.0 µg/L	Weekly	EPA 610 or 625
Chrysene	0.6 µg/L	Weekly	EPA 610 or 625
Indeno(1,2,3-cd)Pyrene	1.0 µg/L	Weekly	EPA 610 or 625
Arsenic ¹	360 µg/L	Weekly	EPA 200.8
Cadmium ¹	1.75 µg/L	Weekly	EPA 200.8
Chromium	15.0 µg/L	Weekly	EPA 200.8

Parameter	Indicator Level	Sampling Frequency	Required Analytical Method
Lead ¹	30.14 µg/L	Weekly	EPA 200.8
PCBs	0.25 µg/L	Weekly	EPA 608
Diesel-Range Hydrocarbons	250 µg/L	Weekly	NWTPH-Dx
Turbidity	25 NTU	Weekly	SM2130
pH	6.5-8.5 su	Weekly	SM4500-H+B

Notes:

¹All concentrations for metallic substances are for “total” metal concentrations.

µg/L = micrograms per liter; NTU = nephelometric turbidity units; su = standard units

The first AO issued for the project also included additional restrictions on water discharged to the Spokane River. Additional restrictions included installing pre-treatment system before discharge to the river and restrictions on flow through treatment systems. Flow through treatment systems must be approved by Ecology before implementation. Ecology also requires submission of a system design and engineering report for approval prior to use of a flow through treatment system.

CSWGP and supplemental AO sampling results must be reported through Ecology’s WQWebDMR database (<https://secureaccess.wa.gov/ecy/wqwebportal>). A SecureAccess Washington account is required to submit the monitoring results. If there is no discharge during the given monitoring period, a Discharge Monitoring Report (DMR) with “no discharge” entered in place of the monitoring results must still be submitted. Daily flow rates or duration and volume of any discharges to the Spokane River should be recorded in the site logbook. Once the site has undergone final stabilization, monitoring can be discontinued in accordance with special condition S1(E)(1) of the CSWGP.

If monitoring indicates that the effluent does not meet the permit requirements, then alternative discharge locations or water treatment technologies should be investigated. Water treatment technologies are discussed in Section 6.0.

5.3. Discharge to the POTW

Before effluent is discharged to the POTW it must be collected, sampled and discharged as a batch in accordance with the IDA. Before sampling, the effluent should be well mixed, and then sampled for the parameters listed in Table 2. Before the first batch is discharged to the POTW, the batch sample must be analyzed for TTO. Additional analysis might be required based upon the results of the TTO analysis. If additional sources of water are added to the original wastewater stream profiled by the first TTO analysis, a second TTO analysis must be performed to characterize the modified waste discharge.

TABLE 2. SMC SECTION 1303A.0204 - LOCAL LIMITS FOR DISCHARGES TO THE POTW

Parameter	Maximum Allowable Discharge ¹
Arsenic	0.41 mg/L
Benzene, toluene, ethylbenzene, and xylene (BTEX)	1.4 mg/L
Cadmium	0.11 mg/L
Total Chromium	5.0 mg/L

Parameter	Maximum Allowable Discharge ¹
Copper	1.9 mg/L
Cyanide	1.9 mg/L
Fats, oils and, grease	Fats, oils, or greases or any other materials of animal (including human) or vegetable origin in quantities which could cause obstruction of the POTW or interference with conveyance or treatment.
Lead	0.32 mg/L
Mercury	0.05 mg/L
Nickel	3.98 mg/L
Non-polar material (or total petroleum hydrocarbons)	Not to exceed 100 mg/L
Silver	1.7 mg/L
Zinc	5.6 mg/L
pH	Effluent must have a pH greater than 5.0 or less than 12.0, or otherwise not have any other corrosive property capable of causing damage or hazard to structures, equipment, or personnel.
Molybdenum	1.5 mg/L
Selenium	1.0 mg/L
Flow	250 gpm ²

Notes:

¹ All concentrations for metallic substances are for "total" metal concentrations.

² Discharge to the POTW during a storm event or when the chance of rain is equal to or greater than 50 percent at the time of the discharge is prohibited.

If initial sampling indicates that the effluent does not meet the permit requirements, then alternative discharge locations or water treatment technologies will be required. Water treatment technologies are discussed in Section 6.0.

Chemical analytical results and discharges volumes must be reported to the POTW for each batch discharged. The DMR in Appendix C must be completed for each batch. DMRs should be submitted to the following:

Angela Tagnani, Pretreatment Chemist
 4401 North A.L. White Parkway
 Spokane, WA 99205-3939
 Fax: 509.625.4605
 Email: atagnani@spokanecity.org

6.0 WATER TREATMENT

COCs identified in the soil included metals, oil range petroleum hydrocarbons and PAHs. These COCs have potential to mix with stormwater and might trigger pretreatment requirements before the effluent is discharged to the POTW or Spokane River.

The level of treatment required to meet permit conditions will generally be unknown until the water is sampled and tested. To reduce the prospect of water treatment, care should be taken to minimize/avoid stormwater contact with exposed soil at the site, especially in areas where contaminated soil was identified. When COC concentrations in the effluent are known, a discharge location should be identified based upon effluent characteristics and the level of treatment anticipated to meet effluent requirements for the respective permit.

Basic sediment control should be used before discharging effluents to either the POTW or Spokane River. Sediment control should include the use of sediment retention methods to create quiescent conditions and allow soil particles to settle out of the effluent. Solids removal can be achieved through the use of portable tanks, lined settling ponds, silt fences or other methods. If the effluent meets the requirements of the CSWGP and supplemental AO or IDAs after solids removal then it can be discharged to the appropriate location.

If the effluent doesn't meet the requirements of the permit dictating the discharge location, then additional water quality treatment will be required before the water can be discharged off site. Water quality treatment methods will be dictated based upon COCs identified in the wastewater and respective permit requirements. Summary of Stormwater Treatment Technologies, Table 3 provides a summary of potential water treatment technologies. Few treatment technologies are available at effectively treating both metals and carcinogenic PAHs (cPAHs), and likely would have very significant impacts to cost and schedule. According to Table 3, organoclay and sand filters might be appropriate treatment technologies to remove these COCs from wastewater.

Table 3 is not a comprehensive list of treatment technologies. If sampling indicates that water treatment beyond solids removal will be required, Table 3 should be reviewed and appropriate vendors contacted to develop water treatment technologies. Pilot tests might be required to evaluate treatment technology effectiveness and applicability.

The following design elements should be considered and provided to potential vendors when evaluating water treatment alternatives:

- Treatment level required;
- Effectiveness of contaminant removal;
- Anticipated flow rate; and
- Cost associated with media replacement, chemical addition and charges imposed by the POTW.

Vendors will need to know anticipated flow rates, initial COC concentrations and effluent COC limits to develop water treatment systems. Upon installation of a water treatment system, the system should be operated, monitored and maintained in accordance with the manufacture recommendations and all associated testing requirements.

7.0 BMPS FOR POST CONSTRUCTION STORMWATER

The SRSM (Spokane County 2008) and *Eastern Washington Low Impact Development Guidance Manual* (Ecology 2013) should be used to design stormwater conveyance and treatment for post construction.

Stormwater treatment and design reference documents are provided in Appendix D. Because of known contamination at the site and anticipated shallow bedrock, concentrated stormwater discharge through infiltration is not a viable option unless a flow path between the infiltration site and Spokane River can be shown to not contain COCs. Discussions with the City of Spokane wastewater department indicate that limited conveyance and treatment capacity for additional stormwater is available in the city's MS4 and at the POTW. Because of these restrictions, stormwater discharge to on-site LID BMPs and the Spokane River is preferred.

7.1. Discharge to the Spokane River

Stormwater from Riverfront Park can be discharged to the Spokane River as long as it doesn't violate surface water quality or sediment standards. If designing a discharge to the Spokane River, existing outfalls should be utilized to the extent practicable. Location, erosion, property ownership and other items must be considered when designing new outfall locations.

The Spokane River currently has an Environmental Protection Agency (EPA)-approved Total Maximum Daily Load (TMDL) for dissolved metals (Merrill 1999) and TMDLs for dissolved oxygen (DO) and polychlorinated biphenyls (PCBs) are under development. In accordance with the SRSM, metals treatment is required for stormwater discharged to the Spokane River (Spokane County 2008). In addition, the Spokane River has been designated as not supporting beneficial uses due to phosphorus; therefore, phosphorus treatment may be required (Spokane County 2008). Because of the above restrictions, stormwater discharged to the Spokane River should be treated for both metals and phosphorus using approved BMPs, unless appropriate justification to avoid treating for metals or phosphorus can be provided to the local jurisdiction. Oil/Water separator BMPs might be required in addition to phosphorus and metals removal if stormwater is generated from parking or vehicle travel areas.

Approved BMPs for metals and phosphorus include bio-infiltration swales and evaporation ponds using the alternate method (Spokane County 2008). Media Filter Drains (MFDs) designed and constructed in accordance with Washington State Department of Transportation (WSDOT) specifications are also acceptable BMPs to treat stormwater for metals and phosphorus.

Bio-infiltration swales and MFDs are the only treatment technologies that have been approved for significant removal for both metals and phosphorus. Implementation of bio-infiltration swales would require collecting the treated water after it infiltrates through the bio-infiltration swale and discharging to the Spokane River. MFDs could possibly be constructed to drain directly to the Spokane River.

Lesser removal rates are anticipated by the use of lined biofiltration channels, WSDOT compost amended biofiltration swales and vegetated buffer strips. Combinations of these BMPs might be appropriate to treat for metals and phosphorus before discharging to the Spokane River. Proper design and construction of BMPs is important to avoid violating surface water quality or sediment standards. A conceptual treatment design that combines both a vegetated buffer strip and biofiltration channel is shown in Figure 6-4 of SRSM.

When designing site stormwater controls, efforts should be made to minimize stormwater collection areas and treatment volumes. The City of Spokane is the local jurisdiction for the Riverfront Park redevelopment projects and drainage submittals will need to be approved by the local jurisdiction. Additional emerging technologies for stormwater treatment may be found at the following:

7.2. LID BMPs

When applicable, LID BMPs should be incorporated into project designs to enhance and combine stormwater management in to the aesthetics of Riverfront Park. LID BMPs include:

- Amending site soils;
- Dispersion;
- Bioretention;
- Trees;
- Permeable pavements;
- Vegetated roofs;
- Minimal excavation foundations; and
- Rainwater harvesting.

The *Eastern Washington Low Impact Development Guidance Manual* (Ecology 2013) provides guidance information for designing LID BMPs. When incorporating LID BMPs into design, careful consideration should be taken in evaluating and avoiding infiltration into contaminated soil. Design of bioretention and rain garden facilities should incorporate an underdrain to collect and convey water which infiltrates through the vegetative layer if located near or in contaminated soil. The use of permeable pavements should generally be avoided in areas with contaminated soil unless infiltrated water is collected before it contacts contaminated soil.

8.0 LIMITATIONS

We have prepared this report for the exclusive use of the City of Spokane and their authorized agents. Within the limitations of scope, schedule and budget, our services have been executed in accordance with generally accepted environmental science practices in this area at the time this report was prepared. No warranty or other conditions, express or implied, shall be understood.

Any electronic form, facsimile or hard copy of the original document (email, text, table, and/or figure), if provided, and any attachments are only a copy of the original document. The original document is stored by GeoEngineers, Inc. and will serve as the official document of record.

Please refer to Appendix E, titled “Report Limitations and Guidelines for Use,” for additional information pertaining to use of this report.

9.0 REFERENCES

Ecology. 2013. “Eastern Washington Low Impact Development Guidance Manual.” Prepared by AHBL and HDR for State of Washington Department of Ecology.

- GeoEngineers, Inc. 2014. "Phase I Environmental Site Assessment, Riverfront Park, 610 West Spokane Falls Boulevard." GEI File No. 0110-148-00.
- GeoEngineers, Inc. 2016a. "Geotechnical Engineering Evaluation and Environmental Site Assessment, Riverfront Park Ice Ribbon and Skyride Facility, Spokane, Washington." GEI File No. 0110-148-04.
- GeoEngineers, Inc. 2016b. "Soil Management Plan, Riverfront Park Redevelopment, Spokane, Washington." GEI File No. 0110-148-04.
- GeoEngineers, Inc. 2016c. "Geotechnical Engineering Evaluation and Environmental Site Assessment, Riverfront Park Looff Carousel, Spokane, Washington." GEI File No. 0110-148-04.
- Merrill. 1999. "Spokane River Dissolved Metals Total Maximum Daily Load Submittal Report." Merrill, Ken. Washington State Department of Ecology, Publication Number 99-49-WQ.
- Spokane County. 2008. "Spokane Regional Stormwater Manual." Prepared by Spokane County, City of Spokane and City of Spokane Valley.
- Washington State Department of Ecology. 2004. "Stormwater Management Manual for Eastern Washington." Washington State Department of Ecology, Publication Number 04-10-076.
- Washington State Department of Ecology. 2015. "Construction Stormwater General Permit." Effective January 1, 2016, Expires December 31, 2020. Issued November 18, 2015.

Table 3
Summary of Stormwater Treatment Technologies
Riverfront Park Water Management Plan
Spokane, Washington

This table was provided by Washington State Department of Ecology (Ecology) as a courtesy. Ecology has not evaluated the effectiveness of any of the following treatment systems. The effectiveness of the treatment systems should be evaluated prior to implementation such that the chosen treatment system does not cause or contribute to a violation of Water Quality Standards.		Granular Activated Carbon (GAC)	Powder Activated Carbon (PAC)	Acid washed GAC	Metal Removal Media	Organoclay	Sand Filters*	Air Strippers	Ion Exchange Resins	Electrocoagulation	Reverse Osmosis	UV Oxidation	Micro/Ultrafiltration**
Contaminant	Contaminant Ranges (µg/L)			For Low pH solutions					Treats dissolved ionic compounds				
Diesel	10.0-3,400	X	X	X		X	X			X	X	X	4
Gasoline	13.0-3,600	X	X	X		X	X			X	X	X	4
BTEX	N/A	X	X	X			2	X				X	4
Acetone	N/A	X	X	X			2	X	X		X	X	
Benzene	0.02-19,000	X	X	X			2	X				X	
2-Butanone	N/A	X	X	X			2	X				X	
Carbon Disulfide	N/A	X	X	X			2	X			X	X	
cis-1,2 DCE	0.08-24,000	X	X	X			2	X			X	X	
Ethylbenzene	N/A	X	X	X			2	X				X	
MEK	N/A	X	X	X			2	X			X	X	
PCE	0.11-715	X	X	X			2	X			X	X	
Pentachlorophenol	N/A	X	X	X			2	X			X	X	
Toluene	0.06-22000	X	X	X			2	X			X	X	
1,1,1 TCA	0.04-5,600	X	X	X			2	X	X			X	
TCE	0.01-42,000	X	X	X		X	2	X			X	X	
Vinyl Chloride	0.02-13,000	X	X	X		X	2	X				X	
Acenaphthene	N/A	X	X	X		X	1	X		X			
Acenaphthylene	N/A	X	X	X		X	1	X		X			
Anthracene	N/A	X	X	X		X	1	X		X			
Fluranthene	N/A	X	X	X		X	1	X		X			
Fluorene	N/A	X	X	X		X	1	X		X			
1- methylnaphthalene	N/A	X	X	X		X	1	X		X			
2-methylnaphthalene	N/A	X	X	X		X	1	X		X			
Naphthalene	N/A	X	X	X		X	1	X		X			
Phenanthrene	N/A	X	X	X		X	1	X		X			
Pyrene	N/A	X	X	X		X	1	X		X			

This table was provided by Washington State Department of Ecology (Ecology) as a courtesy. Ecology has not evaluated the effectiveness of any of the following treatment systems. The effectiveness of the treatment systems should be evaluated prior to implementation such that the chosen treatment system does not cause or contribute to a violation of Water Quality Standards.		Granular Activated Carbon (GAC)	Powder Activated Carbon (PAC)	Acid washed GAC	Metal Removal Media	Organoclay	Sand Filters*	Air Strippers	Ion Exchange Resins	Electrocoagulation	Reverse Osmosis	UV Oxidation	Micro/Ultrafiltration**	
Contaminant	Contaminant Ranges (µg/L)			For Low pH solutions					Treats dissolved ionic compounds					
cPAHs	Benzo(a)Anthracene	0.02-81	X	X	X		X	1	X		X			
	Benzo(a)Pyrene	0.02-30					X	2	X		X			
	Benzo(b)fluoranthene	0.01-40					X	2	X		X			
	Benzo(g,h,i)perylene	0.03-7.4					X	2	X		X			
	Benzo(j)fluoranthene	0.02-34					X	2	X		X			
	Benzo(k)fluoranthene	N/A					X	2	X		X			
	Chrysene	N/A					X	2	X		X			
	Dibenzo(a,h)Anthracene	N/A					X	2	X		X			
	Indeno(1,2,3-c,d)Pyrene	N/A	X	X	X		X	2	X		X			
	PCBs	0.017-21,000	X	X	X			X	X		X	X		
Metals	Arsenic	0.008-60,000	X	X	X	X	X	3			X	X		5
	Barium	5.0 - 64				X	X				X			5
	Cadmium	N/A	X		X	X	X	X		X	X	X		5
	Chromium(total)	0.1-4,580	X	X	X	X	X	X		X	X	X		5
	Chromium(hex)	0.06-241	X	X	X	X	X	X		X	X	X		5
	Copper	0.06-115,000				X	X	X		X	X	X		5
	Lead	5-203	X		X	X	X	X		X		X		5
	Mercury	0.02-1,040	X	X	X	X	X	X		X	X	X		5
	Nickel	5.0-673				X	X	X		X	X	X		5
	Selenium	1.0 - 9.5				X	X	3		X	X	X		5
	Silver	0.002 - 0.66				X	X	X		X	X	X		5
	Zinc	0.001-1,720				X	X	X		X				5

Notes:

1 Chitosan - PAHs, Heavy metals, TSS, Phosphorus

2 Zeolite - BTEX, TCE, toxic and volatile organic compounds

3 Activated Alumina - Arsenic, fluoride, selenium, silica, humic acids

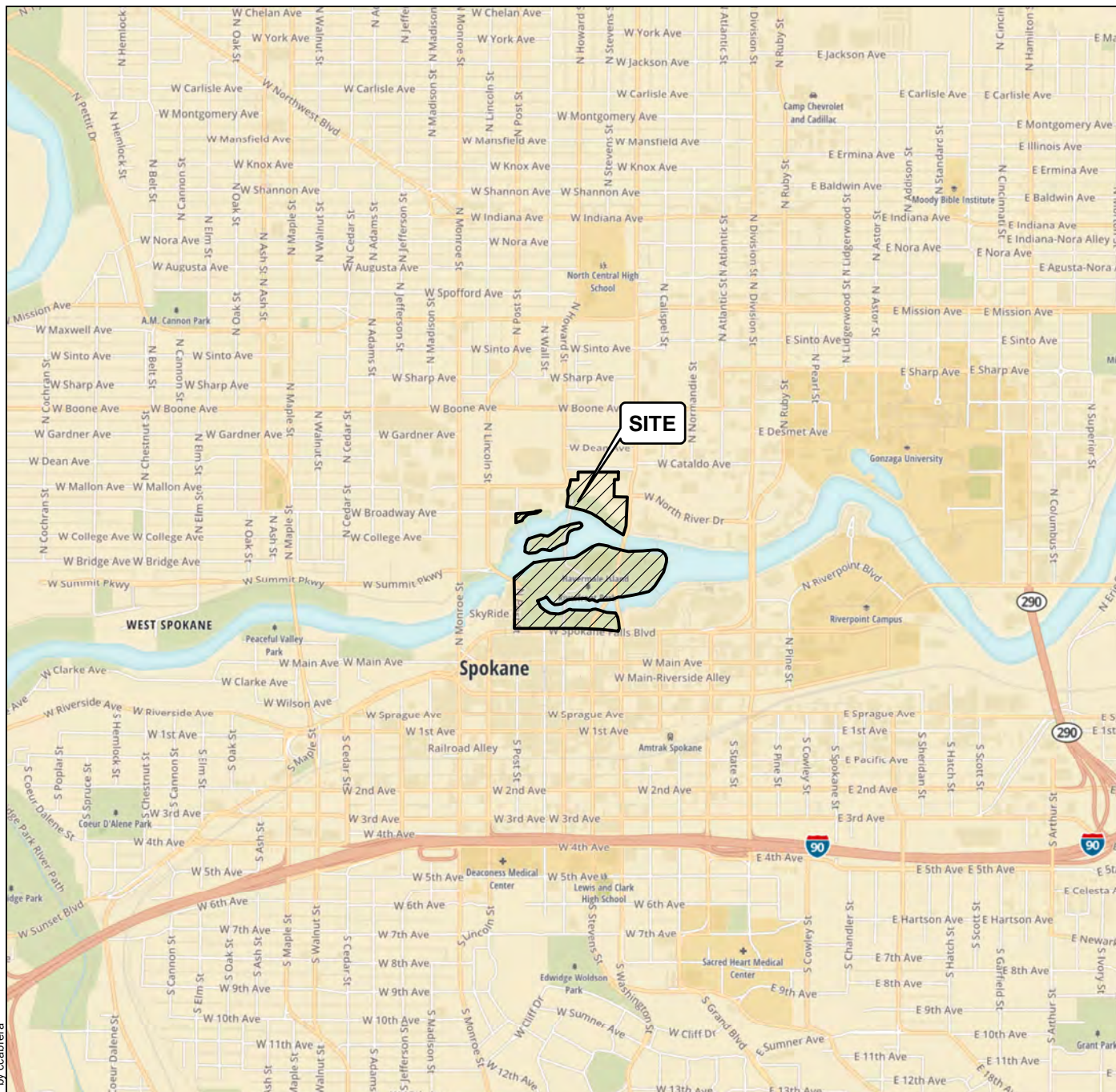
4 Microfiltration - Oils and petroleum products

5 Ultrafiltration - Metals

* Note, Sand filters are customizable per the contaminant to be treated

** Check with your vendor to see which system meets your needs

Source: Treatment Systems for Contaminated Construction Runoff, State of Washington Department of Ecology (<http://www.ecy.wa.gov/programs/wq/stormwater/construction/contaminatedwater.html>)



Legend

 Site Boundary



2,000 0 2,000
Feet

Vicinity Map

Riverfront Park Water Management Plan Spokane, Washington



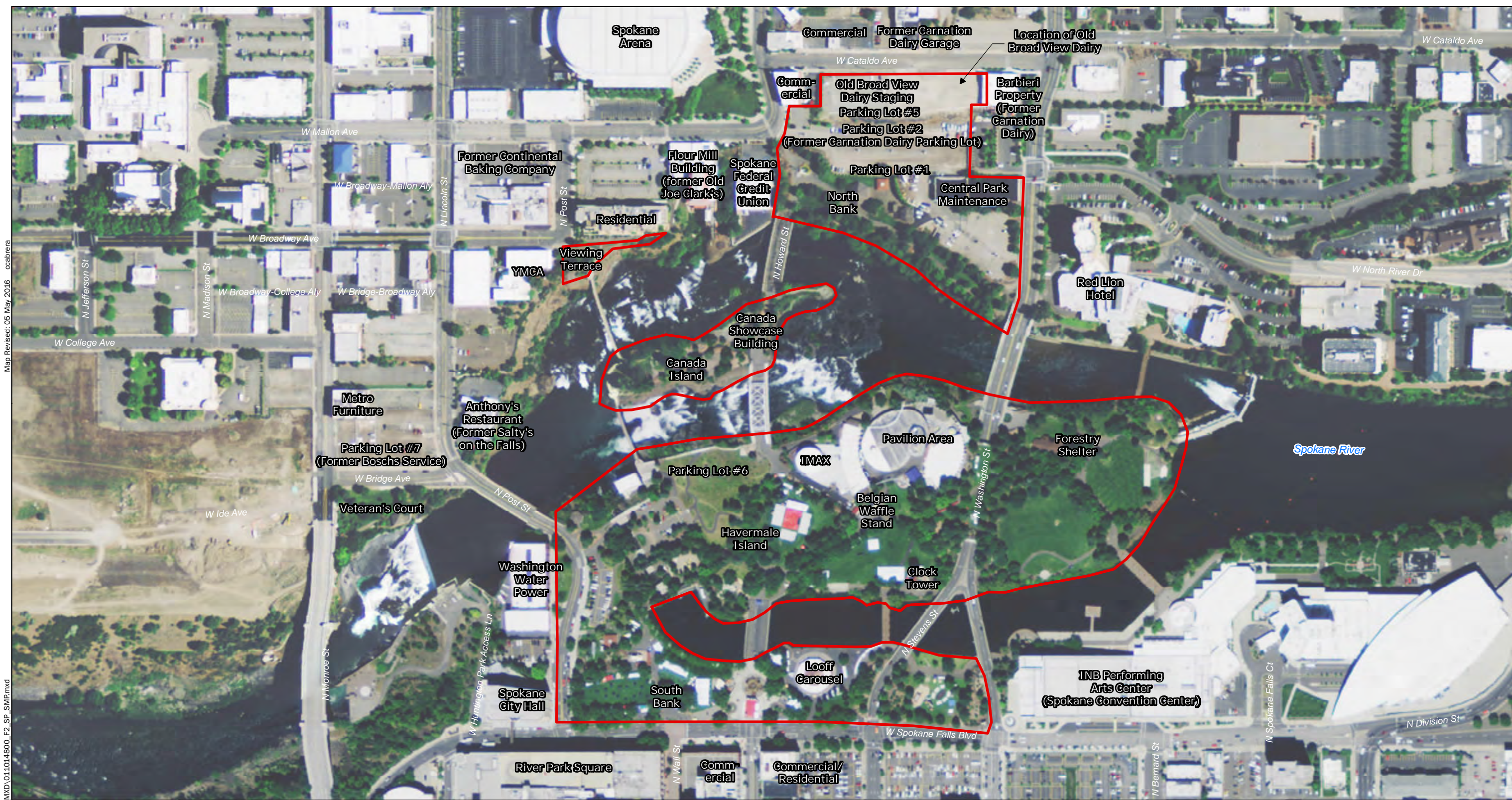
Figure 1

Notes:

1. The locations of all features shown are approximate.
2. This drawing is for information purposes. It is intended to assist in showing features discussed in an attached document. GeoEngineers, Inc. cannot guarantee the accuracy and content of electronic files. The master file is stored by GeoEngineers, Inc. and will serve as the official record of this communication.

Data Source: Mapbox Open Street Map, 2016

Projection: NAD 1983 UTM Zone 11N



Data Source: Streets from City of Spokane GIS.

Notes:

1. The locations of all features shown are approximate.
2. This drawing is for information purposes. It is intended to assist in showing features discussed in an attached document. GeoEngineers, Inc. cannot guarantee the accuracy and content of electronic files. The master file is stored by GeoEngineers, Inc. and will serve as the official record of this communication.

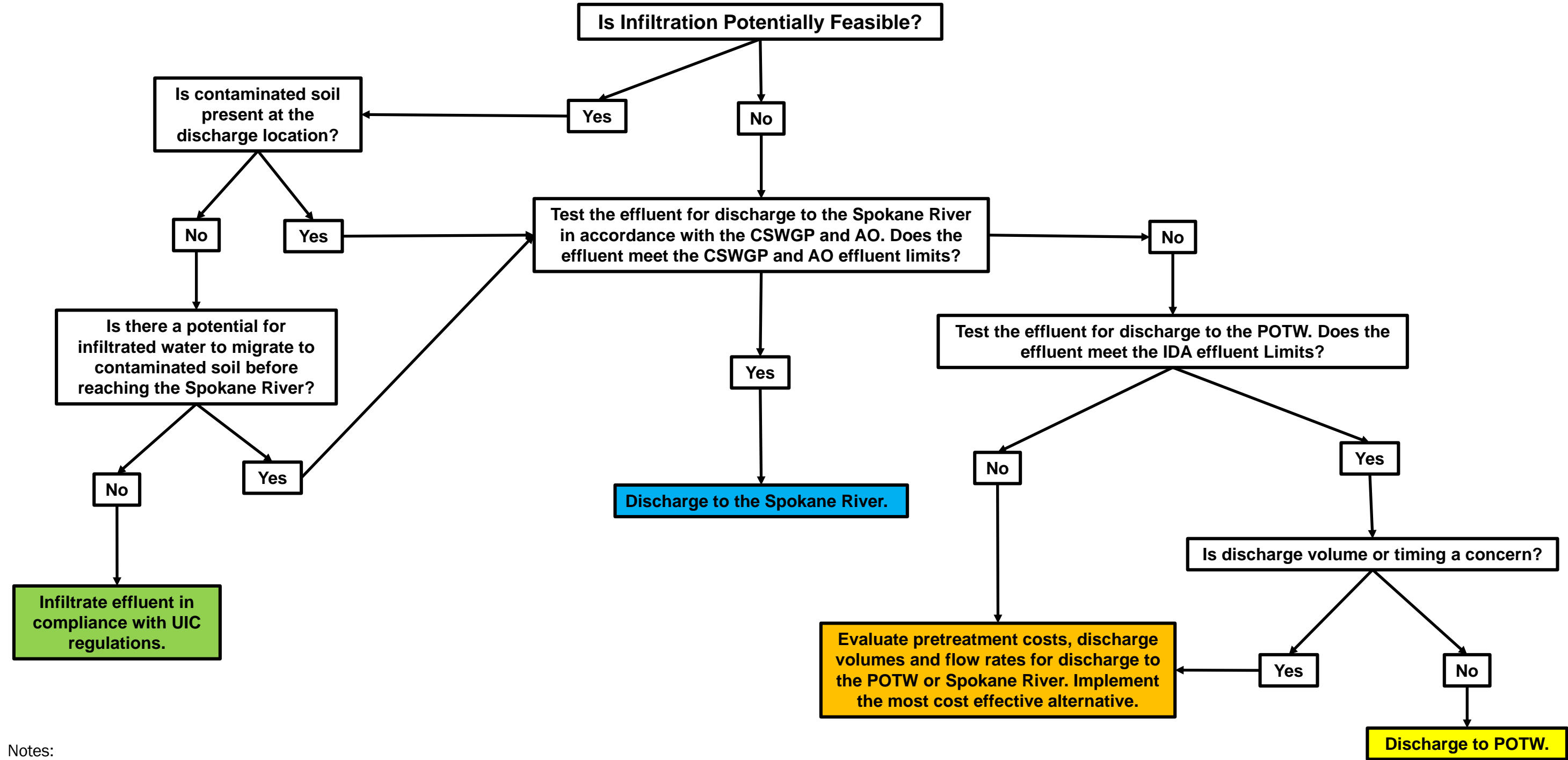
Projection: NAD 1983 UTM Zone 11N

 Approximate Site Boundary



300 0 300
Feet

Site Plan	
Riverfront Park Water Management Plan Spokane, Washington	
	Figure 2



Notes:
 1. Discharge must not cause or contribute to a violation of surface water quality standards (Chapter 173-201A WAC), groundwater quality standards (Chapter 173-200 WAC), sediment management standards (Chapter 173-204 WAC), and human health criteria in National Toxics Rule (40 CFR Part 131.36).

CSWGP – Construction Stormwater General Permit
 POTW – Publically Owned Treatment Works
 WAC – Washington Administrative Code
 CFR – Code of Federal Regulations
 IDA – Industrial Discharge Agreement
 UIC – Underground Injection Control
 AO – Administrative Order

APPENDIX A
City of Spokane Industrial Discharge Agreement

CITY OF SPOKANE
WASTEWATER MANAGEMENT DEPARTMENT
RIVERSIDE PARK WATER RECLAMATION FACILITY
4401 NORTH A.L. WHITE PARKWAY
SPOKANE, WA 99205-3939

Industrial Discharge Agreement

Discharger Name: City of Spokane Parks and Recreation Department

Discharger Address: 808 W. Spokane Falls Blvd.
Spokane, WA 99201

Project Name: Riverfront Park Redevelopment Project –
Ice Ribbon, SkyRide Facility, Howard Street Bridge
Replacement, and access road

Project Location: Riverfront Park

Project Contact: Berry Ellison
Title: Program Manager, Riverfront Park Renovation
Phone Number: (509) 625-6276
E-mail: bellison@spokanecity.org

Authorized Representative: Leroy Eadie
Title: Director, Parks and Recreation Department

Effective Date: July 1, 2016
Expiration Date: June 30, 2017

The City of Spokane Riverside Park Water Reclamation Facility will accept the City of Spokane Parks and Recreation Department's (Parks) process wastewater to the sanitary sewer if certain conditions are met. This Agreement describes the conditions necessary to carry out the provisions of municipal, state, and federal law, and is a special handling agreement as detailed in Spokane Municipal Code 13.0A.0206 (A).

Michael Cannon for Chuck Conklin 6/30/2016
Chuck Conklin, Director, Wastewater Treatment Date

1. PROJECT DESCRIPTION

The Parks and Recreation Department is managing renovations in Riverfront Park. Projects currently include construction of the new Ice Ribbon, SkyRide facility renovation, Howard Street Bridge replacement, and access road. The soil onsite is known to be contaminated with metals, polycyclic aromatic hydrocarbons, petroleum hydrocarbons, and other pollutants of concern.

Stormwater runoff that comes in contact with the soil onsite, and decanted liquid from construction dewatering will be collected in holding tanks at the construction site. The collected wastewater must comply with Spokane Municipal Code Chapter 13.03A before being discharged to the City of Spokane sanitary sewer.

2. DISCHARGE REQUIREMENTS

- a. The collected stormwater and decanted liquid from the dewatering process must comply with all local limits listed in Figure 1 below before discharge to the sanitary sewer.
- b. Written approval from the City of Spokane Industrial Pretreatment Program must be obtained before discharge to the sanitary sewer.
- c. Discharge to the sanitary sewer during a storm event is prohibited. Discharge is also prohibited if the chance of rain at that time is equal to or greater than 50% according to The National Weather Service (<http://www.wrh.noaa.gov/otx/>).
- d. The authorized discharge location is catch basin #1111008IN located on the north side of the intersection of Spokane Falls Boulevard and Wall Street. See Appendix A for map. Details regarding physical connection to this discharge point must be arranged with the City of Spokane Sewer Maintenance Department.
- e. The rate of wastewater discharge is limited to 250 gallons per minute.
- f. Parks shall comply with all the general and specific prohibitive discharge standards in SMC 13.03A.0201 and is responsible to take whatever steps are necessary to ensure the discharge requirements of the discharge agreement are met.
- g. Process water shall not be increased, or in any way diluted, as a partial or complete substitute for adequate treatment to achieve compliance with applicable pretreatment standards and requirements.

3. WASTEWATER MONITORING REQUIREMENTS

- a. Before each wastewater batch discharge event, the collected wastewater must be analyzed for all of the local limit parameters listed in Figure 1, Section D, below. To ensure representative samples, the wastewater must be mixed thoroughly immediately before sampling.
- b. Total Toxic Organics must be analyzed for the first batch of wastewater collected. See Appendix B for the list of Toxic Organics. Additional sampling and/or treatment for these pollutants may be required based on the results of the first sampling event.
- c. Methods for analysis, including collection and preservation, must conform to those specified in Chapter 40 of the Code of Federal Regulations (CFR), Part 136. Analysis must be performed by a Washington State accredited laboratory, except for pH. Samples and measurements taken shall be representative of the volume and nature of the discharge.
- d. The analytical results must be submitted to the City of Spokane Industrial Pretreatment Program to ensure compliance. Written notice of discharge approval must be obtained from the Pretreatment Program before the wastewater is discharged. Written notice will also be provided by the Pretreatment Program if the discharge is denied.
- e. The pH must be measured within 15 minutes of sample collection, so is typically analyzed onsite by the wastewater generator. The pH must be measured using a pH meter which has two-point calibration capability and have automatic temperature compensation (ATC) capability.
- f. The pH meter must be calibrated according to the manufacturer's instructions, and a log of the pH results and the calibrations must be kept.
- g. The pH meter calibration must be performed using two calibration buffers, one of which must be pH 7.0, and the other buffer selected such that the pH calibration range brackets the expected pH of the sample. If more than one week has passed since the last pH meter calibration, or if a buffer check shows the meter requires it, the meter must be recalibrated. At no time shall the results from pH litmus paper or pH test strips be a substitute for reporting pH results taken from a pH meter.
- h. The City of Spokane Industrial Pretreatment Program may conduct an inspection and may perform sampling for all local limit parameters and any additional pollutants as deemed necessary to confirm compliance.

4. DISCHARGE LIMITS

In order to protect RPWRF from pass-through, interference, concentrations of toxic chemicals that would impair beneficial or designated uses of sludge, or potentially hazardous exposure levels, limitations for certain parameters are necessary. These limitations are based on local limits established by RPWRF and codified in ordinance, Spokane Municipal Code (SMC) 13.03A.0201 and 13.03.A.0204. Applicable limits for this discharge include the following:

Figure 1: Local Effluent Limits

PARAMETER	MEASUREMENT
pH	5.0 – 12.0 S.U.
Arsenic (total)	0.41 mg/L
Cadmium (total)	0.11 mg/L
Copper (total)	1.9 mg/L
Chromium (total)	5.0 mg/L
Cyanide (total)	1.9 mg/L
Lead (total)	0.32 mg/L
Mercury (total)	0.05 mg/L
Molybdenum (total)	1.5 mg/L
Nickel (total)	3.98 mg/L
Selenium (total)	1.0 mg/L
Silver (total)	1.7 mg/L
Zinc (total)	5.6 mg/L
Benzene, Toluene, Ethylbenzene, Xylenes (BTEX)	A sum total of the results equal to or less than 1.4 mg/L
Total Petroleum Hydrocarbons (TPH)	
	100 mg/L

5. PROHIBITED DISCHARGES

A. General Prohibition [SMC 13.03A.0201]

No user shall introduce or cause to be introduced into the POTW any pollutant or wastewater which causes pass through or interference. This requirement applies to all users of the POTW, whether or not they are subject to categorical pretreatment standards or any other federal, state or local pretreatment standards or requirements.

B. Specific Prohibitions [SMC 13.03A.0201]

No user shall introduce or cause to be introduced into the POTW anything listed hereafter. Where two or more items apply, the more stringent governs:

1. Pollutants which either alone or by interaction may create a fire or explosive hazard in the POTW or any part thereof, a public nuisance or hazard to life, or prevent entry into the sewers for maintenance and repair or which are in any way injurious to the operation of the system or operating personnel. This includes wastestreams with a closed cup flashpoint of less than one hundred forty degrees F (sixty degrees C) using the test methods specified in 40 CFR §261.21.
2. Wastewater having a pH less than 5.0 or more than 12.0, or otherwise having any other corrosive property capable of causing damage or hazard to structures, equipment, or personnel. Discharges outside the pH range of 5.0 to 12.0 may be approved by written authorization of the superintendent pursuant to a finding that the system is specifically designed to accommodate a discharge of that pH. Authorization is revocable at any time in the superintendent's sole discretion. (Cross Reference: SMC 13.03A.0204(A))
3. Solid or viscous substances in amounts which will cause obstruction of the flow in the POTW. In general, the cutting up or reducing to smaller pieces of any solid materials as a means to enable their introduction into the POTW is prohibited. In addition, in no case shall solids greater than one-quarter inch (0.64 cm) in any dimension be discharged.
4. Pollutants, including oxygen demanding pollutants (BOD, etc.), released at a flow rate and/or concentration which, either singly or by interaction with other pollutants, will cause interference with the POTW.
5. Wastewater having a temperature which will inhibit biological activity in the treatment plant resulting in interference, but in no case, wastewater which causes the temperature at the point of introduction into the treatment plant to exceed one hundred four degrees F (forty degrees C) unless the approval authority, upon request of the superintendent, approves alternative temperature limits.
6. Wastewater which causes the temperature at the point of introduction into the sanitary sewer to exceed one hundred thirty degrees F (fifty-four degrees C).
7. Petroleum oil, non-biodegradable cutting oil, or products of mineral oil origin, in amounts that will cause obstruction of the POTW, interference or pass through.
8. Pollutants which result in the presence of toxic gases, vapors, or fumes within the POTW in a quantity that may cause risk to worker health and safety, in the superintendent's judgment and/or substances identified as toxic pollutants (see SMC 13.03A.0104) or any wastewater containing any pollutant, including oxygen demanding pollutants, in sufficient quantity, either singly or by interaction, to injure or interfere with any wastewater treatment process, constitute a hazard to humans or animals; or be in violation of any applicable statute, rule, regulation, or ordinance of any public agency, including the EPA.
9. Trucked or hauled pollutants, wastewater or other materials (hauled wastewater), except at discharge points designated by the superintendent in accordance with SMC 13.03A.0212.
10. The following are prohibited unless approved by the superintendent under special circumstances, such as lack of direct discharge alternatives due to combined sewer

service or need to augment domestic wastewater flows due to septic conditions as required under WAC 173-216-050:

- a. Noncontact cooling water in volumes deemed significant by the superintendent because of adverse effects or consequences.
 - b. Stormwater, or other direct inflow sources.
 - c. Wastewater significantly affecting POTW hydraulic loading, which does not require treatment or would not be afforded a significant degree of treatment by the POTW.
11. Wastewater which imparts color which cannot be removed by the treatment process, such as dye wastes and vegetable tanning solutions, which imparts color to the treatment plant effluent causing violation of the City's NPDES permit. Color (in combination with turbidity) shall not cause the treatment plant effluent to reduce the depth of the compensation point for photosynthetic activity by more the ten percent from the seasonably established norm for aquatic life, as determined by the superintendent.
 12. Noxious or malodorous liquids, gases, solids, or other wastewater which, either singly or by interaction with other wastes, are sufficient to create a public nuisance or a hazard to life, or to prevent entry into the sewers for maintenance or repair.
 13. Wastewater containing any radioactive wastes or isotopes except in compliance with applicable state or federal regulations and approved by the superintendent.
 14. Stormwater, surface water, ground water, artesian well water, roof runoff, subsurface drainage, swimming pool drainage, condensate, deionized water, noncontact cooling water, and unpolluted wastewater, unless specifically authorized by the superintendent.
 15. Sludges, screenings, or other residues from the pretreatment of industrial wastewaters, or from industrial processes unless authorized by the superintendent.
 16. Medical wastes, except as specifically authorized by the superintendent through a discharge permit issued under Article 3.
 17. Wastewater causing, alone or in conjunction with other sources, the treatment plant's effluent to fail toxicity tests from applicable regulations. (Cross Reference: WAC 173-205-020, 40 C.F.R. § 122.21 (5))
 18. Detergents, surface active agents, or other substances that might cause excessive foaming or interfere with effective function of the POTW.
 19. Fats, oils, or greases or any other materials of animal (including human) or vegetable origin in quantities which could cause obstruction of the POTW or interference with conveyance or treatment or any discharges with total petroleum hydrocarbon concentrations greater than one hundred mg/L. (Cross Reference: SMC 13.03A.0204(A))
 20. Cinders, sand, spent lime, stone or marble dust, metal, glass, straw, shavings, grass clippings, rags, spent grains, spent hops, waste paper, wood, plastics, gas, tar asphalt residues, residues from refining or processing of fuel or lubricating oil, mud or glass grinding or polishing wastes.

21. Liquids, solids, or gas, which by reason of their nature or quantity may be sufficient, alone or by interaction with other materials, to cause fire or explosion, which might cause obstruction or interference or be injurious in any other way to the POTW, its operations, staff or the environment. At no time shall two successive readings on an explosion hazard meter at the point of discharge into the POTW system, or at any point in the POTW system, exceed five percent or any single reading exceed ten percent of the lower explosive limit based on an explosivity meter reading.
 22. Anything which in the opinion of the superintendent may cause harm either to the sewers, sewage treatment process, or equipment, have an adverse effect on the receiving waters or outside environment, or otherwise endanger life, limb or property, or constitute a nuisance, unless allowed under special agreement, except that no special waiver shall be given from categorical pretreatment standards.
 23. Any dangerous wastes as defined in WAC 173-216-030 or hazardous wastes as defined in 40 CFR §261.
 24. Persistent pesticides and/or pesticides regulated by FIFRA (Federal Insecticide Fungicide Rodenticide Act).
 25. Anything else not authorized by the superintendent. The superintendent may specify such substances in a specific user permit, considering the appendices hereto.
- C. Supplementing subsections (A) and (B) of this section, no industrial user shall violate the provisions of 40 CFR §403.5(a) and (b) or WAC 173-216-060 or any statute or regulation referenced therein. Such provisions are all fully incorporated herein.
- D. Pollutants, substances, or wastewater prohibited by this section shall not be processed or stored in such a manner that they could be discharged to the POTW.

6. REPORTING AND RECORDKEEPING REQUIREMENTS

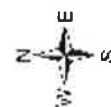
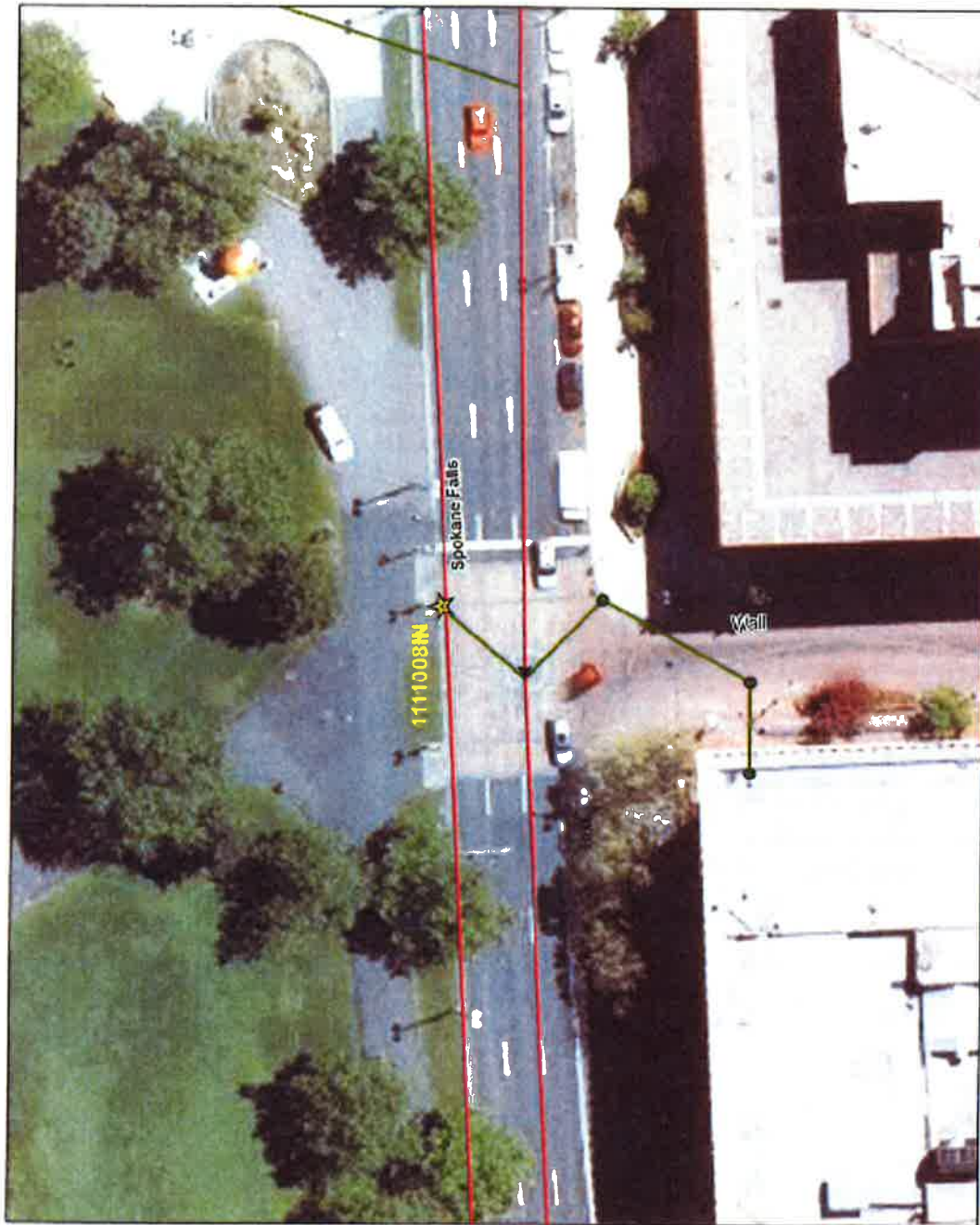
- a. Parks shall notify the City of Spokane Industrial Pretreatment Program in writing 90 days before any substantial change in volume or character of pollutants (20% or more) occurs in the project's wastewater discharge.
- b. All records related to this agreement shall be kept for a minimum of three years.
- c. Any additional self-monitoring wastewater results shall be submitted to the City of Spokane Industrial Pretreatment Program upon receipt. The results shall be submitted to Angela Tagnani, Pretreatment Chemist.

Address: 4401 North A.L. White Parkway Spokane, WA 99205-3939
Fax: (509) 625-4605
E-mail: atagnani@spokanecity.org

7. BILLING REQUIREMENTS

- a. The City of Spokane Parks Department is responsible for the charges associated with wastewater analyses required by this discharge agreement.
- b. The City of Spokane Parks Department will be charged \$0.15160 per gallon, up to 4,000 gallons per batch discharged to the sanitary sewer. If the batch exceeds 4,000 gallons, the rate per gallon will be \$0.15801.

APPENDIX A - MAP OF APPROVED DISCHARGE POINT



THIS IS NOT A LEGAL DOCUMENT.
The information shown on this map is compiled from various sources and is subject to constant revision. Information shown on this map should not be used to determine the location of facilities in relation to property lines, section lines, streets, etc.

APPENDIX B – TOTAL TOXIC ORGANIC LIST**Volatiles**

1V acrolein	12V dichlorobromomethane	23V 1,1,2,2-tetrachloroethane
2V acrylonitrile	14V 1,1-dichloroethane	24V tetrachloroethylene
3V benzene	15V 1,2-dichloroethane	25V toluene
5V bromoform	16V 1,1-dichloroethylene	26V 1,2-trans-dichloroethylene
6V carbon tetrachloride	17V 1,2-dichloropropane	27V 1,1,1-trichloroethane
7V chlorobenzene	18V 1,3-dichloropropylene	28V 1,1,2-trichloroethane
8V chlorodibromomethane	19V ethylbenzene	29V trichloroethylene
9V chloroethane	20V methyl bromide	31V vinyl chloride
10V 2-chloroethylvinyl ether	21V methyl chloride	
11V chloroform	22V methylene chloride	

Acid Compounds

1A 2-chlorophenol	5A 2,4-dinitrophenol	9A pentachlorophenol
2A 2,4-dichlorophenol	6A 2-nitrophenol	10A phenol
3A 2,4-dimethylphenol	7A 4-nitrophenol	11A 2,4,6-trichlorophenol
4A 4,6-dinitro-o-cresol	8A p-chloro-m-cresol	

Base/Neutral

1B acenaphthene	17B 4-chlorophenyl phenyl ether	32B fluorene
2B acenaphthylene	18B chrysene	33B hexachlorobenzene
3B anthracene	19B dibenzo(a, h)anthracene	34B hexachlorobutadiene
4B benzidine	20B 1,2-dichlorobenzene	35B hexachlorocyclopentadiene
5B benzo(a)anthracene	21B 1,3-dichlorobenzene	36B hexachloroethane
6B benzo(a)pyrene	22B 1,4-dichlorobenzene	37B indeno(1,2,3-cd)pyrene
7B 3,4-benzofluoranthene	23B 3,3'-dichlorobenzidine	38B isophorone
8B benzo(ghi)perylene	24B diethyl phthalate	39B naphthalene
9B benzo(k)fluoranthene	25B dimethyl phthalate	40B nitrobenzene
10B bis(2-chloroethoxy)methane	26B di-n-butyl phthalate	41B N-nitrosodimethylamine
11B bis(2-chloroethyl)ether	27B 2,4-dinitrotoluene	42B N-nitrosodi-n-propylamine
12B bis(2-chloroisopropyl)ether	28B 2,6-dinitrotoluene	43B N-nitrosodiphenylamine
13B bis (2-ethylhexyl)phthalate	29B di-n-octyl phthalate	44B phenanthrene
14B 4-bromophenyl phenyl ether	30B 1,2-diphenylhydrazine (as azobenzene)	45B pyrene
15B butylbenzyl phthalate	31B fluoranthene	46B 1,2,4-trichlorobenzene
16B 2-chloronaphthalene		

Pesticides

1P aldrin	11P alpha-endosulfan	22P PCB-1248
2P alpha-BHC	12P beta-endosulfan	23P PCB-1260
3P beta-BHC	13P endosulfan sulfate	24P PCB-1016
4P gamma-BHC	14P endrin	25P toxaphene
5P delta-BHC	15P endrin aldehyde	
6P chlordane	16P heptachlor	
7P 4,4'-DDT	17P heptachlor epoxide	
8P 4,4'-DD	18P PCB-1242	
9P 4,4'-DDD	19P PCB-1254	
10P dieldrin	20P PCB-1221	
	21P PCB-1232	

APPENDIX B
**Construction Stormwater General Permit and
Supplemental Administrative Order**



COPY

STATE OF WASHINGTON
DEPARTMENT OF ECOLOGY

4601 N Monroe Street • Spokane, Washington 99205-1295 • (509)329-3400

August 11, 2016

Mr. Tommy LaRiviere
T. LaRiviere Equipment and Excavation, Inc.
PO Box 100
Athol, Idaho 83801

Order Docket No.	13711
Site Location	Howard Street Bridge South Riverfront Park, Spokane

RE: Administrative Order

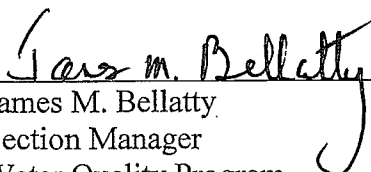
Dear Mr. LaRiviere:

The Department of Ecology (Ecology) has issued this Administrative Order (Order) requiring the T. LaRiviere Equipment and Excavation, Inc. to comply with:

- Chapter 90.48 Revised Code of Washington (RCW) – State of Washington Water Pollution Control Act.
- Chapter 173-201A Washington Administrative Code (WAC) – Water Quality Standards for Surface Waters of the State of Washington.
- National Pollutant Discharge Elimination System (NPDES) Construction Stormwater General Permit WAR304360.

Please contact Shannon Petrisor at (509) 329-3610 or spet461@ecy.wa.gov if you have questions.

Sincerely,


James M. Bellatty
Section Manager
Water Quality Program
Eastern Regional Office

Enclosures: Administrative Order Docket No. 13711
Certified Mail: 7015 0640 0003 6619 9922



STATE OF WASHINGTON
DEPARTMENT OF ECOLOGY

IN THE MATTER OF AN) ADMINISTRATIVE ORDER
ADMINISTRATIVE ORDER) DOCKET NO. 13711
AGAINST)
T. LaRiviere Equipment and Excavation, Inc.)
Tommy LaRiviere)

To: Mr. Tommy LaRiviere
T. LaRiviere Equipment and Excavation, Inc.
PO Box 100
Athol, Idaho 83801

Order Docket No.	13711
Site Location	South Howard Street Bridge Riverfront Park, Spokane

The Washington State Department of Ecology (Ecology) has issued this Administrative Order (Order) requiring the T. LaRiviere Equipment and Excavation, Inc. to comply with:

- Chapter 90.48 Revised Code of Washington (RCW) – State of Washington Water Pollution Control Act.
- Chapter 173-201A Washington Administrative Code (WAC) – Water Quality Standards for Surface Waters of the State of Washington.
- Permit: National Pollutant Discharge Elimination System (NPDES) Construction Stormwater General Permit WAR304360.

This is an Administrative Order in accordance with General Condition G13 (Additional Monitoring) as set forth in the Construction Stormwater General Permit. RCW 90.48.120(2) RCW authorizes Ecology to issue Administrative Orders to accomplish the purposes of Chapter 90.48 RCW.

ORDER TO COMPLY

T. LaRiviere Equipment and Excavation, Inc. is subject to coverage under NPDES Construction Stormwater General Permit WAR304630 for construction activities associated with the construction site known as Howard Street Bridge South. Tommy LaRiviere and the City of Spokane reported that the site contains contaminated soil which has the potential to discharge in stormwater and dewatering water due to the proposed construction activity. The Construction Stormwater General Permit does not have water quality sampling or benchmarks for acenaphthylene, benzo(g,h,i)perylene, fluoranthene, phenanthrene, pyrene, benzo(a)anthracene, benzo(b)fluoranthene, benzo(k)fluoranthene, benzo(a)pyrene, chrysene, indeno (1,2,3-cd), arsenic, cadmium, chromium, lead, PCBs, and semi-volatile (diesel) petroleum hydrocarbons; however, the permit requires compliance with the Water Quality Standards for Surface Water of the State of Washington (Water Quality Standards).

The Order establishes Indicator Levels for the Howard Street Bridge South. Indicator Levels express a pollutant concentration used as a threshold, below which a pollutant is considered unlikely to cause a water quality violation, and above which it may. Indicator Levels in this Administrative Order were derived from the Freshwater Toxic Substances Criteria (WAC 173-201A-240) and practical quantitation level.

For these reasons and in accordance with RCW 90.48.120(2) it is ordered that T. LaRiviere Equipment and Excavation, Inc. take the following actions. These actions are required at the location known as the Howard Street Bridge South located in the Spokane Riverfront Park. In the event of a permit transfer to another Permittee, compliance with this Administrative Order and the actions listed below is required.

T. LaRiviere Equipment and Excavation, Inc. must take the following actions to remain in compliance with NPDES Permit WAR304360:

- Install all pre-treatment and treatment systems prior to any discharge of dewatering water or contaminated construction stormwater to the Spokane River.
- Capture, contain, and treat all contaminated dewatering or contaminated stormwater prior to discharge to the Spokane River.
- All captured sediment from the treatment of the dewatering or contaminated stormwater must be transported to an approved disposal facility based on the level of contamination.
- Contaminated soils excavated during construction will be immediately hauled offsite, without stock piling, to an approved disposal facility based on the level of contamination. When it is not feasible to immediately haul soils offsite, the soils must be placed in a covered area to minimize contact with stormwater.
- All dewatering water or contaminated stormwater must be batch sampled prior to discharging and tested for the parameters per Table 1. If any of the Indicator Levels listed in Table 1 are exceeded, you must stop the discharge of treated dewatering water or contaminated stormwater to the Spokane River, until it has been retested to determine that all parameters are equal to or below the Indicator Levels in Table 1. If any of the Indicator Levels are exceeded after being retested, T. LaRiviere Equipment and Excavation, Inc. shall install a treatment system, discharge to the City of Spokane Wastewater System under a separate agreement with the City of Spokane, or dispose of contaminated stormwater at another licensed off-site facility.
- T. LaRiviere Equipment and Excavation, Inc. may revert to a flow-through treatment system upon written approval from Ecology once the effectiveness of the treatment has been determined. The flow-through treatment system design along with an engineering report must be submitted to Ecology for approval prior to use.
- When a flow-through system has been approved, all dewatering water or contaminated stormwater must be sampled weekly while discharging and tested for the parameter listed in Table 1. If any of the Indicator Levels in Table 1 are exceeded, you must stop the discharge of treated dewatering water or contaminated stormwater to the Spokane River, until it has been retested to determine that all parameters are equal to or below the Indicator Levels in Table 1. If any of the Indicator Levels are exceeded after being retested, T. LaRiviere Equipment and Excavation, Inc. shall install additional treatment or discharge to the City of Spokane Wastewater Treatment system under a separate agreement with the City of Spokane or hauled off-site for disposal in an authorized manner. If additional treatment has been installed, batch treatment shall resume until written authorization from Ecology has been obtained to revert to a flow-through system.

- A Request for Chemical Treatment Form must be submitted to Ecology prior to beginning treatment.
- Provide Ecology with the treatment system design prior to installation.
- Sampling for acenaphthylene, benzo(g,h,i)perylene, fluoranthene, phenanthrene, pyrene, benzo(a)anthracene, benzo(b)fluoranthene, benzo(k)fluoranthene, benzo(a)pyrene, chrysene, indeno (1,2,3-cd), arsenic, cadmium, chromium, lead, PCBs, and semi-volatile (diesel) petroleum hydrocarbons must be reported on the required Discharge Monitoring Report (DMR) according to Permit conditions (S5.B Discharge Monitoring Reports).
- If sampling is conducted more frequently than required by this Order, the results of this monitoring must be included in the calculation and reporting of the data that is submitted in the Discharge Monitoring Reports (DMRs).
- Any discharge to waters of the state above the Table 1 Indicator Levels for acenaphthylene, benzo(g,h,i)perylene, fluoranthene, phenanthrene, pyrene, benzo(a)anthracene, benzo(b)fluoranthene, benzo(k)fluoranthene, benzo(a)pyrene, chrysene, indeno (1,2,3-cd), arsenic, cadmium, chromium, lead, PCBs, and semi-volatile (diesel) petroleum hydrocarbons must be immediately reported to the Department of Ecology.
- All samples must be analyzed by a laboratory registered or accredited under the provisions of, *Accreditation of Environmental Laboratories*, Chapter 137-50 WAC.
- All sampling data must be reported monthly by the 15th of the following month on Discharge Monitoring Reports (DMRs) electronically using Ecology's secure online system WQWebDMR, in accordance to permit condition S5.B. If the measured concentration is below the detection level, then T. LaRiviere Equipment and Excavation, Inc. shall report single analytical values below detection as "less than the detection level (DL)" by entering "<" followed by the numeric value of the detection level (e.g. "<0.1"). All other values above DL must be reported as the numeric value.
- Upload all laboratory sampling results as permit submittals in the WQWebPortal.
- Notify the Ecology Contact listed in this Order to add or move monitoring points.
- Noncompliance with permit requirements or the provisions of this Order must be immediately reported to the Department of Ecology Eastern Regional Office in accordance with Permit Condition S5.F, Noncompliance Notification.
- If a modification of the Order is desired, a written request shall be submitted to Ecology and if approved, Ecology will issue an amendment to this Order.
- Any discharge to waters of the state in exceedance of the contaminant Indicator Level in Table 1, except for turbidity and pH criteria, shall be reported according to permit condition S5.F, Noncompliance Notification as follows:
 - Immediately notify Ecology of noncompliance by calling the regional 24-hour Environmental Report Tracking System (ERTS) phone number (509) 329-3400.
 - Cease the discharge until indicator levels can be met.

- o Submit a detailed written report to Ecology within five (5) days, unless requested earlier by Ecology. See permit condition S5.F.3 for Noncompliance Notification requirements.

Ecology retains the right to make modifications to this Order through a supplemental Order, or amendment to this Order, if it appears necessary to further protect the public interest. This Order does not exempt T. LaRiviere Equipment and Excavation, Inc. from any Construction Stormwater General Permit requirements.

Table 1.

T. LaRiviere Equipment and Excavation, Inc. must use the specified analytical methods, detection limits (DLs) and quantitation levels (QLs) in the following table for monitoring unless the method used produces measurable results in the sample and EPA has listed it as an EPA-approved method in 40 CFR Part 136. If the T. LaRiviere Equipment and Excavation, Inc. uses an alternative method, not specified in the order and as allowed above, it must report the test method, DL, and QL on the discharge monitoring report.

Pollutant & CAS No.	Sampling Frequency	Sample Type	Indicator Level, µg/L	Required Analytical Protocol	Detection Level, µg/L	Quantitation Level, µg/L
POLYCYCLIC AROMATIC HYDROCARBONS (PAH)						
Acenaphthylene (208-96-8)	Weekly	Grab	0.6 ^a	625	0.3	0.6
Benzo(g,h,i)perylene (191-24-2)	Weekly	Grab	1.0 ^a	610/625	0.5	1.0
Fluoranthene (206-44-0)	Weekly	Grab	0.6 ^a	625	0.3	0.6
Phenanthrene (85-01-8)	Weekly	Grab	0.6 ^a	625	0.3	0.6
Pyrene (129-00-0)	Weekly	Grab	0.6 ^a	625	0.3	0.6
CARCINOGENIC POLYCYCLIC AROMATIC HYDROCARBONS (cPAH)						
Benzo(a)anthracene (56-55-3)	Weekly	Grab	0.6 ^a	625	0.3	0.6
Benzo(b)fluoranthene (205-99-2)	Weekly	Grab	1.6 ^a	610/625	0.8	1.6
Benzo(k)fluoranthene (207-08-9)	Weekly	Grab	1.6 ^a	610/625	0.8	1.6
Benzo(a)pyrene (50-32-8)	Weekly	Grab	1.0 ^a	610/625	0.5	1.0
Chrysene (218-01-9)	Weekly	Grab	0.6 ^a	610/625	0.3	0.6
Indeno(1,2,3-cd)Pyrene (193-39-5)	Weekly	Grab	1.0 ^a	610/625	0.5	1.0
METALS						
Arsenic, Total (7440-38-2)	Weekly	Grab	360 ^b	200.8	0.1	0.5
Cadmium, Total (7440-43-9)	Weekly	Grab	1.75 ^b	200.8	0.05	0.25
Chromium, Total (7440-47-3)	Weekly	Grab	15.0 ^c	200.8	0.2	1.0
Lead, Total (7439-92-1)	Weekly	Grab	30.14 ^b	200.8	0.1	0.5
POLYCHLORINATED BIPHENYLS (PCBs)						
PCBs	Weekly	Grab	0.25 ^e	608	0.25	0.5
PETROLEUM HYDROCARBONS						
Semi-volatile (Diesel)Petroleum Hydrocarbons (NWTPH-Dx)	Weekly	Grab	250 ^d	NWTPH-Dx	250	250
Construction Stormwater General Permit Benchmarks						
Parameter			Benchmark	Analytical Method		
Turbidity	Weekly	Grab	25 NTU	SM2130 ^f		
pH	Weekly	Grab	6.5 - 8.5 SU	SM4500-H ⁺ B		
a	No surface water standard, value is laboratory quantitation level.					
b	Freshwater Human Health Criteria, National Toxics Rule (40 CFR 131.36) Acute – Freshwater Toxic Substances Criteria (WAC 173-201A-240) Based on Hardness of 50.0 mg/L for Hardness Depended Metals.					
c	Chromium, Total value is for chromium (hex) Acute Criteria (173-201A WAC) based on hardness of 50.0 mg/L. Meeting this indicator level will protect water quality for total chromium.					
d	NWTPH-Dx = Northwest Total Petroleum Hydrocarbons – Semi-volatile (“diesel”) for diesel range organics and heavy oils (includes jet fuels, kerosene, diesel-oils, hydraulic fluids, mineral oils, lubricating oils, and fuel oils).					
e	Use detection limits as the indicator level because standard is less than detection limit.					
f	Or equivalent					

FAILURE TO COMPLY WITH THIS ORDER

Failure to comply with this Order may result in the issuance of civil penalties or other actions, whether administrative or judicial, to enforce the terms of this Order.

YOUR RIGHT TO APPEAL

You have a right to appeal this Order to the Pollution Control Hearing Board (PCHB) within 30 days of the date of receipt of this Order. The appeal process is governed by Chapter 43.21B RCW and Chapter 371-08 WAC. "Date of receipt" is defined in RCW 43.21B.001(2).

To appeal you must do both of the following within 30 days of the date of receipt of this Order:

- File your appeal and a copy of this Order with the PCHB (see addresses below). Filing means actual receipt by the PCHB during regular business hours.
- Serve a copy of your appeal and this Order on Ecology in paper form – by mail or in person (see addresses below). Email is not accepted.

You must also comply with other applicable requirements in Chapter 43.21B RCW and Chapter 371-08 WAC.

Your appeal alone will not stay the effectiveness of this Order. Stay requests must be submitted in accordance with RCW 43.21B.320.

ADDRESS AND LOCATION INFORMATION

Street Addresses	Mailing Addresses
Department of Ecology Attn: Appeals Processing Desk 300 Desmond Drive SE Lacey, WA 98503	Department of Ecology Attn: Appeals Processing Desk PO Box 47608 Olympia, WA 98504-7608
Pollution Control Hearings Board 1111 Israel Road SW Suite 301 Tumwater, WA 98501	Pollution Control Hearings Board PO Box 40903 Olympia, WA 98504-0903

CONTACT INFORMATION

Please direct all questions about this Order to:

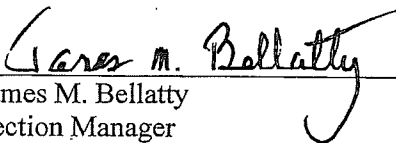
Shannon Petrisor
Department of Ecology
Eastern Regional Office
4601 N Monroe Street, Spokane, WA 99205-1295

Phone: (509) 329 - 3610
Email: spet461@ecy.wa.gov

MORE INFORMATION

- **Pollution Control Hearings Board Website**
www.eho.wa.gov/Boards_PCHB.aspx
- **Chapter 43.21B RCW – Environmental Hearings Office – Pollution Control Hearings Board**
<http://apps.leg.wa.gov/RCW/default.aspx?cite=43.21B>
- **Chapter 371-08 WAC – Practice and Procedure**
<http://apps.leg.wa.gov/WAC/default.aspx?cite=371-08>
- **Chapter 34.05 RCW – Administrative Procedure Act**
<http://apps.leg.wa.gov/RCW/default.aspx?cite=34.05>
- **Laws:** www.ecy.wa.gov/laws-rules/ecyrcw.html
- **Rules:** www.ecy.wa.gov/laws-rules/ecywac.html

SIGNATURE


James M. Bellatty
Section Manager
Water Quality Program
Eastern Regional Office

Date 8/11/16

Issuance Date: November 18, 2015
Effective Date: January 1, 2016
Expiration Date: December 31, 2020

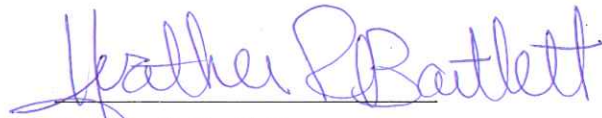
CONSTRUCTION STORMWATER GENERAL PERMIT

National Pollutant Discharge Elimination System (NPDES) and State Waste Discharge General
Permit for Stormwater Discharges Associated with Construction Activity

State of Washington
Department of Ecology
Olympia, Washington 98504

In compliance with the provisions of
Chapter 90.48 Revised Code of Washington
(State of Washington Water Pollution Control Act)
and
Title 33 United States Code, Section 1251 et seq.
The Federal Water Pollution Control Act (The Clean Water Act)

Until this permit expires, is modified, or revoked, Permittees that have properly obtained
coverage under this general permit are authorized to discharge in accordance with the special and
general conditions that follow.



Heather R. Bartlett
Water Quality Program Manager
Washington State Department of Ecology

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SUMMARY OF PERMIT REPORT SUBMITTALS

Refer to the Special and General Conditions within this permit for additional submittal requirements. Appendix A provides a list of definitions. Appendix B provides a list of acronyms.

Table 1: Summary of Required Submittals

Permit Section	Submittal	Frequency	First Submittal Date
S5.A and S8	High Turbidity/Transparency Phone Reporting	As Necessary	Within 24 hours
S5.B	Discharge Monitoring Report	Monthly*	Within 15 days following the end of each month
S5.F and S8	Noncompliance Notification – Telephone Notification	As necessary	Within 24-hours
S5.F	Noncompliance Notification – Written Report	As necessary	Within 5 Days of non-compliance
S9.C	Request for Chemical Treatment Form	As necessary	Written approval from Ecology is required prior to using chemical treatment (with the exception of dry ice or CO ₂ to adjust pH)
G2	Notice of Change in Authorization	As necessary	
G6	Permit Application for Substantive Changes to the Discharge	As necessary	
G8	Application for Permit Renewal	1/permit cycle	No later than 180 days before expiration
G9	Notice of Permit Transfer	As necessary	
G20	Notice of Planned Changes	As necessary	
G22	Reporting Anticipated Non-compliance	As necessary	

SPECIAL NOTE: *Permittees must submit electronic Discharge Monitoring Reports (DMRs) to the Washington State Department of Ecology monthly, regardless of site discharge, for the full duration of permit coverage. Refer to Section S5.B of this General Permit for more specific information regarding DMRs.

Table 2: Summary of Required On-site Documentation

Document Title	Permit Conditions
Permit Coverage Letter	See Conditions S2 , S5
Construction Stormwater General Permit	See Conditions S2 , S5
Site Log Book	See Conditions S4 , S5
Stormwater Pollution Prevention Plan (SWPPP)	See Conditions S9 , S5

SPECIAL CONDITIONS

S1. PERMIT COVERAGE

A. Permit Area

This Construction Stormwater General Permit (CSWGP) covers all areas of Washington State, except for federal operators and Indian Country as specified in Special Condition S1.E.3.

B. Operators Required to Seek Coverage Under this General Permit:

1. Operators of the following construction activities are required to seek coverage under this CSWGP:
 - a. Clearing, grading and/or excavation that results in the disturbance of one or more acres (including off-site disturbance acreage authorized in S1.C.2) and discharges stormwater to surface waters of the State; and clearing, grading and/or excavation on sites smaller than one acre that are part of a larger common plan of development or sale, if the common plan of development or sale will ultimately disturb one acre or more and discharge stormwater to surface waters of the State.
 - i. This includes forest practices (including, but not limited to, class IV conversions) that are part of a construction activity that will result in the disturbance of one or more acres, and discharge to surface waters of the State (that is, forest practices that prepare a site for construction activities); and
 - b. Any size construction activity discharging stormwater to waters of the State that the Washington State Department of Ecology (Ecology):
 - i. Determines to be a significant contributor of pollutants to waters of the State of Washington.
 - ii. Reasonably expects to cause a violation of any water quality standard.
2. Operators of the following activities are not required to seek coverage under this CSWGP (unless specifically required under Special Condition S1.B.1.b. above):
 - a. Construction activities that discharge all stormwater and non-stormwater to ground water, sanitary sewer, or combined sewer, and have no point source discharge to either surface water or a storm sewer system that drains to surface waters of the State.
 - b. Construction activities covered under an Erosivity Waiver (Special Condition S2.C).
 - c. Routine maintenance that is performed to maintain the original line and grade, hydraulic capacity, or original purpose of a facility.

C. Authorized Discharges:

1. *Stormwater Associated with Construction Activity.* Subject to compliance with the terms and conditions of this permit, Permittees are authorized to discharge stormwater associated with construction activity to surface waters of the State or to a storm sewer system that drains to surface waters of the State. (Note that “surface waters of the State” may exist on a construction site as well as off site; for example, a creek running through a site.)
2. *Stormwater Associated with Construction Support Activity.* This permit also authorizes stormwater discharge from support activities related to the permitted construction site (for example, an on-site portable rock crusher, off-site equipment staging yards, material storage areas, borrow areas, etc.) provided:
 - a. The support activity relates directly to the permitted construction site that is required to have an NPDES permit; and
 - b. The support activity is not a commercial operation serving multiple unrelated construction projects, and does not operate beyond the completion of the construction activity; and
 - c. Appropriate controls and measures are identified in the Stormwater Pollution Prevention Plan (SWPPP) for the discharges from the support activity areas.
3. *Non-Stormwater Discharges.* The categories and sources of non-stormwater discharges identified below are authorized conditionally, provided the discharge is consistent with the terms and conditions of this permit:
 - a. Discharges from fire-fighting activities.
 - b. Fire hydrant system flushing.
 - c. Potable water, including uncontaminated water line flushing.
 - d. Hydrostatic test water.
 - e. Uncontaminated air conditioning or compressor condensate.
 - f. Uncontaminated ground water or spring water.
 - g. Uncontaminated excavation dewatering water (in accordance with S9.D.10).
 - h. Uncontaminated discharges from foundation or footing drains.
 - i. Uncontaminated water used to control dust. Permittees must minimize the amount of dust control water used.
 - j. Routine external building wash down that does not use detergents.
 - k. Landscape irrigation water.

The SWPPP must adequately address all authorized non-stormwater discharges, except for discharges from fire-fighting activities, and must comply with Special Condition S3.

At a minimum, discharges from potable water (including water line flushing), fire hydrant system flushing, and pipeline hydrostatic test water must undergo the following: dechlorination to a concentration of 0.1 parts per million (ppm) or less, and pH adjustment to within 6.5 – 8.5 standard units (su), if necessary.

D. Prohibited Discharges:

The following discharges to waters of the State, including ground water, are prohibited.

1. Concrete wastewater.
2. Wastewater from washout and clean-up of stucco, paint, form release oils, curing compounds and other construction materials.
3. Process wastewater as defined by 40 Code of Federal Regulations (CFR) 122.2 (see Appendix A of this permit).
4. Slurry materials and waste from shaft drilling, including process wastewater from shaft drilling for construction of building, road, and bridge foundations unless managed according to Special Condition S9.D.9.j.
5. Fuels, oils, or other pollutants used in vehicle and equipment operation and maintenance.
6. Soaps or solvents used in vehicle and equipment washing.
7. Wheel wash wastewater, unless managed according to Special Condition S9.D.9.
8. Discharges from dewatering activities, including discharges from dewatering of trenches and excavations, unless managed according to Special Condition S9.D.10.

E. Limits on Coverage

Ecology may require any discharger to apply for and obtain coverage under an individual permit or another more specific general permit. Such alternative coverage will be required when Ecology determines that this CSWGP does not provide adequate assurance that water quality will be protected, or there is a reasonable potential for the project to cause or contribute to a violation of water quality standards.

The following stormwater discharges are not covered by this permit:

1. Post-construction stormwater discharges that originate from the site after completion of construction activities and the site has undergone final stabilization.
2. Non-point source silvicultural activities such as nursery operations, site preparation, reforestation and subsequent cultural treatment, thinning, prescribed burning, pest and fire control, harvesting operations, surface drainage, or road construction and maintenance, from which there is natural runoff as excluded in 40 CFR Subpart 122.
3. Stormwater from any federal operator.

4. Stormwater from facilities located on “Indian Country” as defined in 18 U.S.C. §1151, except portions of the Puyallup Reservation as noted below.

Indian Country includes:

- a. All land within any Indian Reservation notwithstanding the issuance of any patent, and, including rights-of-way running through the reservation. This includes all federal, tribal, and Indian and non-Indian privately owned land within the reservation.
- b. All off-reservation Indian allotments, the Indian titles to which have not been extinguished, including rights-of-way running through the same.
- c. All off-reservation federal trust lands held for Native American Tribes.

Puyallup Exception: Following the *Puyallup Tribes of Indians Land Settlement Act of 1989*, 25 U.S.C. §1773; the permit does apply to land within the Puyallup Reservation except for discharges to surface water on land held in trust by the federal government.

5. Stormwater from any site covered under an existing NPDES individual permit in which stormwater management and/or treatment requirements are included for all stormwater discharges associated with construction activity.
6. Stormwater from a site where an applicable Total Maximum Daily Load (TMDL) requirement specifically precludes or prohibits discharges from construction activity.

S2. APPLICATION REQUIREMENTS

A. Permit Application Forms

1. Notice of Intent Form/Timeline
 - a. Operators of new or previously unpermitted construction activities must submit a complete and accurate permit application (Notice of Intent, or NOI) to Ecology.
 - b. Operators must apply using the electronic application form (NOI) available on Ecology’s website <http://www.ecy.wa.gov/programs/wq/stormwater/construction/index.html>. Permittees unable to submit electronically (for example, those who do not have an internet connection) must contact Ecology to request a waiver and obtain instructions on how to obtain a paper NOI.

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- c. The operator must submit the NOI at least 60 days before discharging stormwater from construction activities and must submit it on or before the date of the first public notice (see Special Condition S2.B below for details). The 30-day public comment period begins on the publication date of the second public notice. Unless Ecology responds to the complete application in writing, based on public comments, or any other relevant factors, coverage under the general permit will automatically commence on the thirty-first day following receipt by Ecology of a completed NOI, or the issuance date of this permit, whichever is later; unless Ecology specifies a later date in writing as required by WAC173-226-200(2).
- d. If an applicant intends to use a Best Management Practice (BMP) selected on the basis of Special Condition S9.C.4 (“demonstrably equivalent” BMPs), the applicant must notify Ecology of its selection as part of the NOI. In the event the applicant selects BMPs after submission of the NOI, it must provide notice of the selection of an equivalent BMP to Ecology at least 60 days before intended use of the equivalent BMP.
- e. Permittees must notify Ecology regarding any changes to the information provided on the NOI by submitting an updated NOI. Examples of such changes include, but are not limited to:
 - i. Changes to the Permittee’s mailing address,
 - ii. Changes to the on-site contact person information, *and*
 - iii. Changes to the area/acreage affected by construction activity.
- f. Applicants must notify Ecology if they are aware of contaminated soils and/or groundwater associated with the construction activity. Provide detailed information with the NOI (as known and readily available) on the nature and extent of the contamination (concentrations, locations, and depth), as well as pollution prevention and/or treatment BMPs proposed to control the discharge of soil and/or groundwater contaminants in stormwater. Examples of such detail may include, but are not limited to:
 - i. List or table of all known contaminants with laboratory test results showing concentration and depth,
 - ii. Map with sample locations,
 - iii. Temporary Erosion and Sediment Control (TESC) plans,
 - iv. Related portions of the Stormwater Pollution Prevention Plan (SWPPP) that address the management of contaminated and potentially contaminated construction stormwater and dewatering water,
 - v. Dewatering plan and/or dewatering contingency plan.

2. Transfer of Coverage Form

The Permittee can transfer current coverage under this permit to one or more new operators, including operators of sites within a Common Plan of Development, provided the Permittee submits a Transfer of Coverage Form in accordance with General Condition G9. Transfers do not require public notice.

B. Public Notice

For new or previously unpermitted construction activities, the applicant must publish a public notice at least one time each week for two consecutive weeks, at least 7 days apart, in a newspaper with general circulation in the county where the construction is to take place. The notice must contain:

1. A statement that “The applicant is seeking coverage under the Washington State Department of Ecology’s Construction Stormwater NPDES and State Waste Discharge General Permit”.
2. The name, address and location of the construction site.
3. The name and address of the applicant.
4. The type of construction activity that will result in a discharge (for example, residential construction, commercial construction, etc.), and the number of acres to be disturbed.
5. The name of the receiving water(s) (that is, the surface water(s) to which the site will discharge), or, if the discharge is through a storm sewer system, the name of the operator of the system.
6. The statement: “Any persons desiring to present their views to the Washington State Department of Ecology regarding this application, or interested in Ecology’s action on this application, may notify Ecology in writing no later than 30 days of the last date of publication of this notice. Ecology reviews public comments and considers whether discharges from this project would cause a measurable change in receiving water quality, and, if so, whether the project is necessary and in the overriding public interest according to Tier II antidegradation requirements under WAC 173-201A-320. Comments can be submitted to: Department of Ecology, PO Box 47696, Olympia, Washington 98504-7696 Attn: Water Quality Program, Construction Stormwater.”

C. Erosivity Waiver

Construction site operators may qualify for an erosivity waiver from the CSWGP if the following conditions are met:

1. The site will result in the disturbance of fewer than 5 acres and the site is not a portion of a common plan of development or sale that will disturb 5 acres or greater.
2. Calculation of Erosivity “R” Factor and Regional Timeframe:
 - a. The project’s rainfall erosivity factor (“R” Factor) must be less than 5 during the period of construction activity, as calculated (see the CSWGP homepage <http://www.ecy.wa.gov/programs/wq/stormwater/construction/index.html> for a link to the EPA’s calculator and step by step instructions on computing the “R” Factor in the EPA Erosivity Waiver Fact Sheet). The period of construction activity starts when the land is first disturbed and ends with final stabilization. In addition:
 - b. The entire period of construction activity must fall within the following timeframes:
 - i. For sites west of the Cascades Crest: June 15 – September 15.
 - ii. For sites east of the Cascades Crest, excluding the Central Basin: June 15 – October 15.
 - iii. For sites east of the Cascades Crest, within the Central Basin: no additional timeframe restrictions apply. The Central Basin is defined as the portions of Eastern Washington with mean annual precipitation of less than 12 inches. For a map of the Central Basin (Average Annual Precipitation Region 2), refer to <http://www.ecy.wa.gov/programs/wq/stormwater/construction/resourcesguidance.html>.
3. Construction site operators must submit a complete Erosivity Waiver certification form at least one week before disturbing the land. Certification must include statements that the operator will:
 - a. Comply with applicable local stormwater requirements; **and**
 - b. Implement appropriate erosion and sediment control BMPs to prevent violations of water quality standards.
4. This waiver is not available for facilities declared significant contributors of pollutants as defined in Special Condition S1.B.1.b. or for any size construction activity that could reasonably expect to cause a violation of any water quality standard as defined in Special Condition S1.B.1.b.ii.
5. This waiver does not apply to construction activities which include non-stormwater discharges listed in Special Condition S1.C.3.

6. If construction activity extends beyond the certified waiver period for any reason, the operator must either:
 - a. Recalculate the rainfall erosivity “R” factor using the original start date and a new projected ending date and, if the “R” factor is still under 5 *and* the entire project falls within the applicable regional timeframe in Special Condition S2.C.2.b, complete and submit an amended waiver certification form before the original waiver expires; *or*
 - b. Submit a complete permit application to Ecology in accordance with Special Condition S2.A and B before the end of the certified waiver period.

S3. COMPLIANCE WITH STANDARDS

- A. Discharges must not cause or contribute to a violation of surface water quality standards (Chapter 173-201A WAC), ground water quality standards (Chapter 173-200 WAC), sediment management standards (Chapter 173-204 WAC), and human health-based criteria in the National Toxics Rule (40 CFR Part 131.36). Discharges not in compliance with these standards are not authorized.
- B. Prior to the discharge of stormwater and non-stormwater to waters of the State, the Permittee must apply all known, available, and reasonable methods of prevention, control, and treatment (AKART). This includes the preparation and implementation of an adequate SWPPP, with all appropriate BMPs installed and maintained in accordance with the SWPPP and the terms and conditions of this permit.
- C. Ecology presumes that a Permittee complies with water quality standards unless discharge monitoring data or other site-specific information demonstrates that a discharge causes or contributes to a violation of water quality standards, when the Permittee complies with the following conditions. The Permittee must fully:
 1. Comply with all permit conditions, including planning, sampling, monitoring, reporting, and recordkeeping conditions.
 2. Implement stormwater BMPs contained in stormwater management manuals published or approved by Ecology, or BMPs that are demonstrably equivalent to BMPs contained in stormwater technical manuals published or approved by Ecology, including the proper selection, implementation, and maintenance of all applicable and appropriate BMPs for on-site pollution control. (For purposes of this section, the stormwater manuals listed in Appendix 10 of the Phase I Municipal Stormwater Permit are approved by Ecology.)
- D. Where construction sites also discharge to ground water, the ground water discharges must also meet the terms and conditions of this CSWGP. Permittees who discharge to ground water through an injection well must also comply with any applicable requirements of the Underground Injection Control (UIC) regulations, Chapter 173-218 WAC.

S4. MONITORING REQUIREMENTS, BENCHMARKS, AND REPORTING TRIGGERS

A. Site Log Book

The Permittee must maintain a site log book that contains a record of the implementation of the SWPPP and other permit requirements, including the installation and maintenance of BMPs, site inspections, and stormwater monitoring.

B. Site Inspections

The Permittee's site inspections must include all areas disturbed by construction activities, all BMPs, and all stormwater discharge points under the Permittee's operational control. (See Special Conditions S4.B.3 and B.4 below for detailed requirements of the Permittee's Certified Erosion and Sediment Control Lead [CESCL].)

Construction sites one acre or larger that discharge stormwater to surface waters of the State must have site inspections conducted by a certified CESCL. Sites less than one acre may have a person without CESCL certification conduct inspections.

1. The Permittee must examine stormwater visually for the presence of suspended sediment, turbidity, discoloration, and oil sheen. The Permittee must evaluate the effectiveness of BMPs and determine if it is necessary to install, maintain, or repair BMPs to improve the quality of stormwater discharges.

Based on the results of the inspection, the Permittee must correct the problems identified by:

- a. Reviewing the SWPPP for compliance with Special Condition S9 and making appropriate revisions within 7 days of the inspection.
 - b. Immediately beginning the process of fully implementing and maintaining appropriate source control and/or treatment BMPs as soon as possible, addressing the problems no later than within 10 days of the inspection. If installation of necessary treatment BMPs is not feasible within 10 days, Ecology may approve additional time when an extension is requested by a Permittee within the initial 10-day response period.
 - c. Documenting BMP implementation and maintenance in the site log book.
2. The Permittee must inspect all areas disturbed by construction activities, all BMPs, and all stormwater discharge points at least once every calendar week and within 24 hours of any discharge from the site. (For purposes of this condition, individual discharge events that last more than one day do not require daily inspections. For example, if a stormwater pond discharges continuously over the course of a week, only one inspection is required that week.) The Permittee may reduce the inspection frequency for temporarily stabilized, inactive sites to once every calendar month.

3. The Permittee must have staff knowledgeable in the principles and practices of erosion and sediment control. The CESCL (sites one acre or more) or inspector (sites less than one acre) must have the skills to assess the:
 - a. Site conditions and construction activities that could impact the quality of stormwater, *and*
 - b. Effectiveness of erosion and sediment control measures used to control the quality of stormwater discharges.
4. The SWPPP must identify the CESCL or inspector, who must be present on site or on-call at all times. The CESCL must obtain this certification through an approved erosion and sediment control training program that meets the minimum training standards established by Ecology (see BMP C160 in the manual referred to in Special Condition S9.C.1 and 2).
5. The Permittee must summarize the results of each inspection in an inspection report or checklist and enter the report/checklist into, or attach it to, the site log book. At a minimum, each inspection report or checklist must include:
 - a. Inspection date and time.
 - b. Weather information, the general conditions during inspection and the approximate amount of precipitation since the last inspection, and precipitation within the last 24 hours.
 - c. A summary or list of all implemented BMPs, including observations of all erosion/sediment control structures or practices.
 - d. A description of the locations:
 - i. Of BMPs inspected;
 - ii. Of BMPs that need maintenance and why;
 - iii. Of BMPs that failed to operate as designed or intended; *and*
 - iv. Where additional or different BMPs are needed, and why.
 - e. A description of stormwater discharged from the site. The Permittee must note the presence of suspended sediment, turbidity, discoloration, and oil sheen, as applicable.
 - f. Any water quality monitoring performed during inspection.
 - g. General comments and notes, including a brief description of any BMP repairs, maintenance or installations made following the inspection.
 - h. A summary report and a schedule of implementation of the remedial actions that the Permittee plans to take if the site inspection indicates that the site is out of compliance. The remedial actions taken must meet the requirements of the SWPPP and the permit.

- i. The name, title, and signature of the person conducting the site inspection, a phone number or other reliable method to reach this person, and the following statement: “I certify that this report is true, accurate, and complete to the best of my knowledge and belief.”

Table 3: Summary of Primary Monitoring Requirements

Size of Soil Disturbance¹	Weekly Site Inspections	Weekly Sampling w/ Turbidity Meter	Weekly Sampling w/ Transparency Tube	Weekly pH Sampling²	CESCL Required for Inspections?
Sites that disturb less than 1 acre, but are part of a larger Common Plan of Development	Required	Not Required	Not Required	Not Required	No
Sites that disturb 1 acre or more, but fewer than 5 acres	Required	Sampling Required – either method ³		Required	Yes
Sites that disturb 5 acres or more	Required	Required	Not Required ⁴	Required	Yes

¹ Soil disturbance is calculated by adding together all areas that will be affected by construction activity. Construction activity means clearing, grading, excavation, and any other activity that disturbs the surface of the land, including ingress/egress from the site.

² If construction activity results in the disturbance of 1 acre or more, and involves significant concrete work (1,000 cubic yards of poured over the life of a project) or the use of recycled concrete or engineered soils (soil amendments including but not limited to Portland cement-treated base [CTB], cement kiln dust [CKD], or fly ash), and stormwater from the affected area drains to surface waters of the State or to a storm sewer stormwater collection system that drains to other surface waters of the State, the Permittee must conduct pH sampling in accordance with Special Condition S4.D.

³ Sites with one or more acres, but fewer than 5 acres of soil disturbance, must conduct turbidity or transparency sampling in accordance with Special Condition S4.C.

⁴ Sites equal to or greater than 5 acres of soil disturbance must conduct turbidity sampling using a turbidity meter in accordance with Special Condition S4.C.

C. Turbidity/Transparency Sampling Requirements

1. Sampling Methods

- a. If construction activity involves the disturbance of 5 acres or more, the Permittee must conduct turbidity sampling per Special Condition S4.C.
- b. If construction activity involves 1 acre or more but fewer than 5 acres of soil disturbance, the Permittee must conduct either transparency sampling **or** turbidity sampling per Special Condition S4.C.

2. Sampling Frequency

- a. The Permittee must sample all discharge points at least once every calendar week when stormwater (or authorized non-stormwater) discharges from the site or enters any on-site surface waters of the state (for example, a creek running through a site); sampling is not required on sites that disturb less than an acre.
- b. Samples must be representative of the flow and characteristics of the discharge.
- c. Sampling is not required when there is no discharge during a calendar week.
- d. Sampling is not required outside of normal working hours or during unsafe conditions.
- e. If the Permittee is unable to sample during a monitoring period, the Permittee must include a brief explanation in the monthly Discharge Monitoring Report (DMR).
- f. Sampling is not required before construction activity begins.
- g. The Permittee may reduce the sampling frequency for temporarily stabilized, inactive sites to once every calendar month.

3. Sampling Locations

- a. Sampling is required at all points where stormwater associated with construction activity (or authorized non-stormwater) is discharged off site, including where it enters any on-site surface waters of the state (for example, a creek running through a site).
- b. The Permittee may discontinue sampling at discharge points that drain areas of the project that are fully stabilized to prevent erosion.
- c. The Permittee must identify all sampling point(s) on the SWPPP site map and clearly mark these points in the field with a flag, tape, stake or other visible marker.
- d. Sampling is not required for discharge that is sent directly to sanitary or combined sewer systems.

- e. The Permittee may discontinue sampling at discharge points in areas of the project where the Permittee no longer has operational control of the construction activity.
4. Sampling and Analysis Methods
- a. The Permittee performs turbidity analysis with a calibrated turbidity meter (turbidimeter) either on site or at an accredited lab. The Permittee must record the results in the site log book in nephelometric turbidity units (NTUs).
 - b. The Permittee performs transparency analysis on site with a 1¾-inch-diameter, 60-centimeter (cm)-long transparency tube. The Permittee will record the results in the site log book in centimeters (cm).

Table 4: Monitoring and Reporting Requirements

Parameter	Unit	Analytical Method	Sampling Frequency	Benchmark Value	Phone Reporting Trigger Value
Turbidity	NTU	SM2130	Weekly, if discharging	25 NTUs	250 NTUs
Transparency	cm	Manufacturer instructions, or Ecology guidance	Weekly, if discharging	33 cm	6 cm

5. Turbidity/Transparency Benchmark Values and Reporting Triggers

The benchmark value for turbidity is 25 NTUs or less. The benchmark value for transparency is 33 centimeters (cm). Note: Benchmark values do not apply to discharges to segments of water bodies on Washington State’s 303(d) list (Category 5) for turbidity, fine sediment, or phosphorus; these discharges are subject to a numeric effluent limit for turbidity. Refer to Special Condition S8 for more information.

a. Turbidity 26 – 249 NTUs, or Transparency 32 – 7 cm:

If the discharge turbidity is 26 to 249 NTUs; or if discharge transparency is less than 33 cm, but equal to or greater than 6 cm, the Permittee must:

- i. Review the SWPPP for compliance with Special Condition S9 and make appropriate revisions within 7 days of the date the discharge exceeded the benchmark.
- ii. Immediately begin the process to fully implement and maintain appropriate source control and/or treatment BMPs as soon as possible, addressing the problems within 10 days of the date the discharge exceeded the benchmark. If installation of necessary treatment BMPs is not feasible within 10 days, Ecology may approve additional time when the Permittee requests an extension within the initial 10-day response period.

- iii. Document BMP implementation and maintenance in the site log book.
- b. Turbidity 250 NTUs or greater, or Transparency 6 cm or less:

If a discharge point's turbidity is 250 NTUs or greater, or if discharge transparency is less than or equal to 6 cm, the Permittee must complete the reporting and adaptive management process described below.

 - i. Telephone or submit an electronic report to the applicable Ecology Region's Environmental Report Tracking System (ERTS) number (or through Ecology's Water Quality Permitting Portal [WQWebPortal] – Permit Submittals when the form is available) within 24 hours, in accordance with Special Condition S5.A.
 - Central Region (Okanogan, Chelan, Douglas, Kittitas, Yakima, Klickitat, Benton): (509) 575-2490
 - Eastern Region (Adams, Asotin, Columbia, Ferry, Franklin, Garfield, Grant, Lincoln, Pend Oreille, Spokane, Stevens, Walla Walla, Whitman): (509) 329-3400
 - Northwest Region (Kitsap, Snohomish, Island, King, San Juan, Skagit, Whatcom): (425) 649-7000
 - Southwest Region (Grays Harbor, Lewis, Mason, Thurston, Pierce, Clark, Cowlitz, Skamania, Wahkiakum, Clallam, Jefferson, Pacific): (360) 407-6300

Links to these numbers and the ERTS reporting page are located on the following web site:

<http://www.ecy.wa.gov/programs/wq/stormwater/construction/index.html>.

- ii. Review the SWPPP for compliance with Special Condition S9 and make appropriate revisions within 7 days of the date the discharge exceeded the benchmark.
- iii. Immediately begin the process to fully implement and maintain appropriate source control and/or treatment BMPs as soon as possible, addressing the problems within 10 days of the date the discharge exceeded the benchmark. If installation of necessary treatment BMPs is not feasible within 10 days, Ecology may approve additional time when the Permittee requests an extension within the initial 10-day response period.
- iv. Document BMP implementation and maintenance in the site log book.
- v. Sample discharges daily until:
 - a) Turbidity is 25 NTUs (or lower); **or**
 - b) Transparency is 33 cm (or greater); **or**

- c) The Permittee has demonstrated compliance with the water quality limit for turbidity:
 - 1) No more than 5 NTUs over background turbidity, if background is less than 50 NTUs, **or**
 - 2) No more than 10% over background turbidity, if background is 50 NTUs or greater; **or**
- d) The discharge stops or is eliminated.

D. pH Sampling Requirements – Significant Concrete Work or Engineered Soils

If construction activity results in the disturbance of 1 acre or more, **and** involves significant concrete work (significant concrete work means greater than 1000 cubic yards poured concrete used over the life of a project) or the use of recycled concrete or engineered soils (soil amendments including but not limited to Portland cement-treated base [CTB], cement kiln dust [CKD], or fly ash), and stormwater from the affected area drains to surface waters of the State or to a storm sewer system that drains to surface waters of the State, the Permittee must conduct pH sampling as set forth below. Note: In addition, discharges to segments of water bodies on Washington State’s 303(d) list (Category 5) for high pH are subject to a numeric effluent limit for pH; refer to Special Condition S8.

1. For sites with significant concrete work, the Permittee must begin the pH sampling period when the concrete is first poured and exposed to precipitation, and continue weekly throughout and after the concrete pour and curing period, until stormwater pH is in the range of 6.5 to 8.5 (su).
2. For sites with recycled concrete, the Permittee must begin the weekly pH sampling period when the recycled concrete is first exposed to precipitation and must continue until the recycled concrete is fully stabilized and stormwater pH is in the range of 6.5 to 8.5 (su).
3. For sites with engineered soils, the Permittee must begin the pH sampling period when the soil amendments are first exposed to precipitation and must continue until the area of engineered soils is fully stabilized.
4. During the applicable pH monitoring period defined above, the Permittee must obtain a representative sample of stormwater and conduct pH analysis at least once per week.
5. The Permittee must sample pH in the sediment trap/pond(s) or other locations that receive stormwater runoff from the area of significant concrete work or engineered soils before the stormwater discharges to surface waters.
6. The benchmark value for pH is 8.5 standard units. Anytime sampling indicates that pH is 8.5 or greater, the Permittee must either:

- a. Prevent the high pH water (8.5 or above) from entering storm sewer systems or surface waters; *or*
 - b. If necessary, adjust or neutralize the high pH water until it is in the range of pH 6.5 to 8.5 (su) using an appropriate treatment BMP such as carbon dioxide (CO₂) sparging or dry ice. The Permittee must obtain written approval from Ecology before using any form of chemical treatment other than CO₂ sparging or dry ice.
7. The Permittee must perform pH analysis on site with a calibrated pH meter, pH test kit, or wide range pH indicator paper. The Permittee must record pH sampling results in the site log book.

S5. REPORTING AND RECORDKEEPING REQUIREMENTS

A. High Turbidity Reporting

Anytime sampling performed in accordance with Special Condition S4.C indicates turbidity has reached the 250 NTUs or more (or transparency less than or equal to 6 cm) high turbidity reporting level, the Permittee must either call the applicable Ecology Region's Environmental Report Tracking System (ERTS) number by phone within 24 hours of analysis or submit an electronic ERTS report (or submit an electronic report through Ecology's Water Quality Permitting Portal (WQWebPortal) – Permit Submittals when the form is available). See the CSWGP web site for links to ERTS and the WQWebPortal: <http://www.ecy.wa.gov/programs/wq/stormwater/construction/index.html>. Also, see phone numbers in Special Condition S4.C.5.b.i.

B. Discharge Monitoring Reports (DMRs)

Permittees required to conduct water quality sampling in accordance with Special Conditions S4.C (Turbidity/Transparency), S4.D (pH), S8 (303[d]/TMDL sampling), and/or G13 (Additional Sampling) must submit the results to Ecology.

Permittees must submit monitoring data using Ecology's WQWebDMR web application accessed through Ecology's Water Quality Permitting Portal. To find out more information and to sign up for WQWebDMR go to: <http://www.ecy.wa.gov/programs/wq/permits/paris/portal.html>.

Permittees unable to submit electronically (for example, those who do not have an internet connection) must contact Ecology to request a waiver and obtain instructions on how to obtain a paper copy DMR at:

Department of Ecology
Water Quality Program - Construction Stormwater
PO Box 47696
Olympia, Washington 98504-7696

Permittees who obtain a waiver not to use WQWebDMR must use the forms provided to them by Ecology; submittals must be mailed to the address above. Permittees shall

submit DMR forms to be received by Ecology within 15 days following the end of each month.

If there was no discharge during a given monitoring period, all Permittees must submit a DMR as required with "no discharge" entered in place of the monitoring results. DMRs are required for the full duration of permit coverage (from issuance date to termination). For more information, contact Ecology staff using information provided at the following web site: www.ecy.wa.gov/programs/wq/permits/paris/contacts.html.

C. Records Retention

The Permittee must retain records of all monitoring information (site log book, sampling results, inspection reports/checklists, etc.), Stormwater Pollution Prevention Plan, copy of the permit coverage letter (including Transfer of Coverage documentation), and any other documentation of compliance with permit requirements for the entire life of the construction project and for a minimum of three years following the termination of permit coverage. Such information must include all calibration and maintenance records, and records of all data used to complete the application for this permit. This period of retention must be extended during the course of any unresolved litigation regarding the discharge of pollutants by the Permittee or when requested by Ecology.

D. Recording Results

For each measurement or sample taken, the Permittee must record the following information:

1. Date, place, method, and time of sampling or measurement.
2. The first and last name of the individual who performed the sampling or measurement.
3. The date(s) the analyses were performed.
4. The first and last name of the individual who performed the analyses.
5. The analytical techniques or methods used.
6. The results of all analyses.

E. Additional Monitoring by the Permittee

If the Permittee monitors any pollutant more frequently than required by this permit using test procedures specified by Special Condition S4 of this permit, the results of this monitoring must be included in the calculation and reporting of the data submitted in the Permittee's DMR.

F. Noncompliance Notification

In the event the Permittee is unable to comply with any part of the terms and conditions of this permit, and the resulting noncompliance may cause a threat to human health or the environment (such as but not limited to spills of fuels or other materials, catastrophic pond or slope failure, and discharges that violate water quality standards), or exceed

numeric effluent limitations (see S8. Discharges to 303(d) or TMDL Waterbodies), the Permittee must, upon becoming aware of the circumstance:

1. Notify Ecology within 24-hours of the failure to comply by calling the applicable Regional office ERTS phone number (refer to Special Condition S4.C.5.b.i. or www.ecy.wa.gov/programs/wq/stormwater/construction/turbidity.html for Regional ERTS phone numbers).
2. Immediately take action to prevent the discharge/pollution, or otherwise stop or correct the noncompliance, and, if applicable, repeat sampling and analysis of any noncompliance immediately and submit the results to Ecology within five (5) days of becoming aware of the violation.
3. Submit a detailed written report to Ecology within five (5) days, of the time the Permittee becomes aware of the circumstances, unless requested earlier by Ecology. The report must be submitted using Ecology's Water Quality Permitting Portal (WQWebPortal) - Permit Submittals, unless a waiver from electronic reporting has been granted according to S5.B. The report must contain a description of the noncompliance, including exact dates and times, and if the noncompliance has not been corrected, the anticipated time it is expected to continue; and the steps taken or planned to reduce, eliminate, and prevent reoccurrence of the noncompliance.

The Permittee must report any unanticipated bypass and/or upset that exceeds any effluent limit in the permit in accordance with the 24-hour reporting requirement contained in 40 C.F.R. 122.41(l)(6).

Compliance with these requirements does not relieve the Permittee from responsibility to maintain continuous compliance with the terms and conditions of this permit or the resulting liability for failure to comply. Upon request of the Permittee, Ecology may waive the requirement for a written report on a case-by-case basis, if the immediate notification is received by Ecology within 24 hours.

G. Access to Plans and Records

1. The Permittee must retain the following permit documentation (plans and records) on site, or within reasonable access to the site, for use by the operator or for on-site review by Ecology or the local jurisdiction:
 - a. General Permit
 - b. Permit Coverage Letter
 - c. Stormwater Pollution Prevention Plan (SWPPP)
 - d. Site Log Book
2. The Permittee must address written requests for plans and records listed above (Special Condition S5.G.1) as follows:

- a. The Permittee must provide a copy of plans and records to Ecology within 14 days of receipt of a written request from Ecology.
- b. The Permittee must provide a copy of plans and records to the public when requested in writing. Upon receiving a written request from the public for the Permittee's plans and records, the Permittee must either:
 - i. Provide a copy of the plans and records to the requester within 14 days of a receipt of the written request; *or*
 - ii. Notify the requester within 10 days of receipt of the written request of the location and times within normal business hours when the plans and records may be viewed; and provide access to the plans and records within 14 days of receipt of the written request; *or*
 - iii. Within 14 days of receipt of the written request, the Permittee may submit a copy of the plans and records to Ecology for viewing and/or copying by the requester at an Ecology office, or a mutually agreed location. If plans and records are viewed and/or copied at a location other than at an Ecology office, the Permittee will provide reasonable access to copying services for which a reasonable fee may be charged. The Permittee must notify the requester within 10 days of receipt of the request where the plans and records may be viewed and/or copied.

S6. PERMIT FEES

The Permittee must pay permit fees assessed by Ecology. Fees for stormwater discharges covered under this permit are established by Chapter 173-224 WAC. Ecology continues to assess permit fees until the permit is terminated in accordance with Special Condition S10 or revoked in accordance with General Condition G5.

S7. SOLID AND LIQUID WASTE DISPOSAL

The Permittee must handle and dispose of solid and liquid wastes generated by construction activity, such as demolition debris, construction materials, contaminated materials, and waste materials from maintenance activities, including liquids and solids from cleaning catch basins and other stormwater facilities, in accordance with:

- A. Special Condition S3, Compliance with Standards
- B. WAC 173-216-110
- C. Other applicable regulations

S8. DISCHARGES TO 303(d) OR TMDL WATERBODIES

- A. Sampling and Numeric Effluent Limits For Certain Discharges to 303(d)-listed Waterbodies

1. Permittees who discharge to segments of waterbodies listed as impaired by the State of Washington under Section 303(d) of the Clean Water Act for turbidity, fine sediment, high pH, or phosphorus, must conduct water quality sampling according to the requirements of this section, and Special Conditions S4.C.2.b-f and S4.C.3.b-d, and must comply with the applicable numeric effluent limitations in S8.C and S8.D.
2. All references and requirements associated with Section 303(d) of the Clean Water Act mean the most current listing by Ecology of impaired waters (Category 5) that exists on January 1, 2016, or the date when the operator's complete permit application is received by Ecology, whichever is later.

B. Limits on Coverage for New Discharges to TMDL or 303(d)-listed Waters

Operators of construction sites that discharge to a TMDL or 303(d)-listed waterbody are not eligible for coverage under this permit *unless* the operator:

1. Prevents exposing stormwater to pollutants for which the waterbody is impaired, and retains documentation in the SWPPP that details procedures taken to prevent exposure on site; ***or***
2. Documents that the pollutants for which the waterbody is impaired are not present at the site, and retains documentation of this finding within the SWPPP; ***or***
3. Provides Ecology with data indicating the discharge is not expected to cause or contribute to an exceedance of a water quality standard, and retains such data on site with the SWPPP. The operator must provide data and other technical information to Ecology that sufficiently demonstrate:
 - a. For discharges to waters without an EPA-approved or -established TMDL, that the discharge of the pollutant for which the water is impaired will meet in-stream water quality criteria at the point of discharge to the waterbody; ***or***
 - b. For discharges to waters with an EPA-approved or -established TMDL, that there is sufficient remaining wasteload allocation in the TMDL to allow construction stormwater discharge and that existing dischargers to the waterbody are subject to compliance schedules designed to bring the waterbody into attainment with water quality standards.

Operators of construction sites are eligible for coverage under this permit if Ecology issues permit coverage based upon an affirmative determination that the *discharge will not cause or contribute to the existing impairment.*

C. Sampling and Numeric Effluent Limits for Discharges to Water Bodies on the 303(d) List for Turbidity, Fine Sediment, or Phosphorus

1. Permittees who discharge to segments of water bodies on the 303(d) list (Category 5) for turbidity, fine sediment, or phosphorus must conduct turbidity sampling in accordance with Special Condition S4.C.2 and comply with either of the numeric effluent limits noted in Table 5 below.

2. As an alternative to the 25 NTUs effluent limit noted in Table 5 below (applied at the point where stormwater [or authorized non-stormwater] is discharged off-site), Permittees may choose to comply with the surface water quality standard for turbidity. The standard is: no more than 5 NTUs over background turbidity when the background turbidity is 50 NTUs or less, or no more than a 10% increase in turbidity when the background turbidity is more than 50 NTUs. In order to use the water quality standard requirement, the sampling must take place at the following locations:
 - a. Background turbidity in the 303(d)-listed receiving water immediately upstream (upgradient) or outside the area of influence of the discharge.
 - b. Turbidity at the point of discharge into the 303(d)-listed receiving water, inside the area of influence of the discharge.
3. Discharges that exceed the numeric effluent limit for turbidity constitute a violation of this permit.
4. Permittees whose discharges exceed the numeric effluent limit shall sample discharges daily until the violation is corrected and comply with the non-compliance notification requirements in Special Condition S5.F.

Table 5: Turbidity, Fine Sediment & Phosphorus Sampling and Limits for 303(d)-Listed Waters

Parameter identified in 303(d) listing	Parameter Sampled	Unit	Analytical Method	Sampling Frequency	Numeric Effluent Limit ¹
<ul style="list-style-type: none"> • Turbidity • Fine Sediment • Phosphorus 	Turbidity	NTU	SM2130	Weekly, if discharging	25 NTUs, at the point where stormwater is discharged from the site; OR In compliance with the surface water quality standard for turbidity (S8.C.2.a)

¹Permittees subject to a numeric effluent limit for turbidity may, at their discretion, choose either numeric effluent limitation based on site-specific considerations including, but not limited to, safety, access and convenience.

D. Discharges to Water Bodies on the 303(d) List for High pH

1. Permittees who discharge to segments of water bodies on the 303(d) list (Category 5) for high pH must conduct pH sampling in accordance with the table below, and comply with the numeric effluent limit of pH 6.5 to 8.5 su (Table 6).

Table 6: pH Sampling and Limits for 303(d)-Listed Waters

Parameter identified in 303(d) listing	Parameter Sampled/Units	Analytical Method	Sampling Frequency	Numeric Effluent Limit
High pH	pH /Standard Units	pH meter	Weekly, if discharging	In the range of 6.5 – 8.5

2. At the Permittee's discretion, compliance with the limit shall be assessed at one of the following locations:
 - a. Directly in the 303(d)-listed waterbody segment, inside the immediate area of influence of the discharge; or
 - b. Alternatively, the Permittee may measure pH at the point where the discharge leaves the construction site, rather than in the receiving water.
 3. Discharges that exceed the numeric effluent limit for pH (outside the range of 6.5 – 8.5 su) constitute a violation of this permit.
 4. Permittees whose discharges exceed the numeric effluent limit shall sample discharges daily until the violation is corrected and comply with the non-compliance notification requirements in Special Condition S5.F.
- E. Sampling and Limits for Sites Discharging to Waters Covered by a TMDL or Another Pollution Control Plan
1. Discharges to a waterbody that is subject to a Total Maximum Daily Load (TMDL) for turbidity, fine sediment, high pH, or phosphorus must be consistent with the TMDL. Refer to <http://www.ecy.wa.gov/programs/wq/tmdl/TMDLsbyWria/TMDLbyWria.html> for more information on TMDLs.
 - a. Where an applicable TMDL sets specific waste load allocations or requirements for discharges covered by this permit, discharges must be consistent with any specific waste load allocations or requirements established by the applicable TMDL.
 - i. The Permittee must sample discharges weekly or as otherwise specified by the TMDL to evaluate compliance with the specific waste load allocations or requirements.
 - ii. Analytical methods used to meet the monitoring requirements must conform to the latest revision of the Guidelines Establishing Test Procedures for the Analysis of Pollutants contained in 40 CFR Part 136. Turbidity and pH methods need not be accredited or registered unless conducted at a laboratory which must otherwise be accredited or registered.
 - b. Where an applicable TMDL has established a general waste load allocation for construction stormwater discharges, but has not identified specific requirements,

compliance with Special Conditions S4 (Monitoring) and S9 (SWPPPs) will constitute compliance with the approved TMDL.

- c. Where an applicable TMDL has not specified a waste load allocation for construction stormwater discharges, but has not excluded these discharges, compliance with Special Conditions S4 (Monitoring) and S9 (SWPPPs) will constitute compliance with the approved TMDL.
 - d. Where an applicable TMDL specifically precludes or prohibits discharges from construction activity, the operator is not eligible for coverage under this permit.
2. Applicable TMDL means a TMDL for turbidity, fine sediment, high pH, or phosphorus that is completed and approved by EPA before January 1, 2016, or before the date the operator's complete permit application is received by Ecology, whichever is later. TMDLs completed after the operator's complete permit application is received by Ecology become applicable to the Permittee only if they are imposed through an administrative order by Ecology, or through a modification of permit coverage.

S9. STORMWATER POLLUTION PREVENTION PLAN

The Permittee must prepare and properly implement an adequate Stormwater Pollution Prevention Plan (SWPPP) for construction activity in accordance with the requirements of this permit beginning with initial soil disturbance and until final stabilization.

A. The Permittee's SWPPP must meet the following objectives:

- 1. To implement best management practices (BMPs) to prevent erosion and sedimentation, and to identify, reduce, eliminate or prevent stormwater contamination and water pollution from construction activity.
- 2. To prevent violations of surface water quality, ground water quality, or sediment management standards.
- 3. To control peak volumetric flow rates and velocities of stormwater discharges.

B. General Requirements

- 1. The SWPPP must include a narrative and drawings. All BMPs must be clearly referenced in the narrative and marked on the drawings. The SWPPP narrative must include documentation to explain and justify the pollution prevention decisions made for the project. Documentation must include:
 - a. Information about existing site conditions (topography, drainage, soils, vegetation, etc.).
 - b. Potential erosion problem areas.
 - c. The 13 elements of a SWPPP in Special Condition S9.D.1-13, including BMPs used to address each element.

- d. Construction phasing/sequence and general BMP implementation schedule.
 - e. The actions to be taken if BMP performance goals are not achieved—for example, a contingency plan for additional treatment and/or storage of stormwater that would violate the water quality standards if discharged.
 - f. Engineering calculations for ponds, treatment systems, and any other designed structures.
2. The Permittee must modify the SWPPP if, during inspections or investigations conducted by the owner/operator, or the applicable local or state regulatory authority, it is determined that the SWPPP is, or would be, ineffective in eliminating or significantly minimizing pollutants in stormwater discharges from the site. The Permittee must then:
- a. Review the SWPPP for compliance with Special Condition S9 and make appropriate revisions within 7 days of the inspection or investigation.
 - b. Immediately begin the process to fully implement and maintain appropriate source control and/or treatment BMPs as soon as possible, addressing the problems no later than 10 days from the inspection or investigation. If installation of necessary treatment BMPs is not feasible within 10 days, Ecology may approve additional time when an extension is requested by a Permittee within the initial 10-day response period.
 - c. Document BMP implementation and maintenance in the site log book.

The Permittee must modify the SWPPP whenever there is a change in design, construction, operation, or maintenance at the construction site that has, or could have, a significant effect on the discharge of pollutants to waters of the State.

C. Stormwater Best Management Practices (BMPs)

BMPs must be consistent with:

- 1. Stormwater Management Manual for Western Washington (most current approved edition at the time this permit was issued), for sites west of the crest of the Cascade Mountains; *or*
- 2. Stormwater Management Manual for Eastern Washington (most current approved edition at the time this permit was issued), for sites east of the crest of the Cascade Mountains; *or*
- 3. Revisions to the manuals listed in Special Condition S9.C.1. & 2., or other stormwater management guidance documents or manuals which provide an equivalent level of pollution prevention, that are approved by Ecology and incorporated into this permit in accordance with the permit modification requirements of WAC 173-226-230; *or*

4. Documentation in the SWPPP that the BMPs selected provide an equivalent level of pollution prevention, compared to the applicable Stormwater Management Manuals, including:
 - a. The technical basis for the selection of all stormwater BMPs (scientific, technical studies, and/or modeling) that support the performance claims for the BMPs being selected.
 - b. An assessment of how the selected BMP will satisfy AKART requirements and the applicable federal technology-based treatment requirements under 40 CFR part 125.3.

D. SWPPP – Narrative Contents and Requirements

The Permittee must include each of the 13 elements below in Special Condition S9.D.1-13 in the narrative of the SWPPP and implement them unless site conditions render the element unnecessary and the exemption from that element is clearly justified in the SWPPP.

1. Preserve Vegetation/Mark Clearing Limits
 - a. Before beginning land-disturbing activities, including clearing and grading, clearly mark all clearing limits, sensitive areas and their buffers, and trees that are to be preserved within the construction area.
 - b. Retain the duff layer, native topsoil, and natural vegetation in an undisturbed state to the maximum degree practicable.
2. Establish Construction Access
 - a. Limit construction vehicle access and exit to one route, if possible.
 - b. Stabilize access points with a pad of quarry spalls, crushed rock, or other equivalent BMPs, to minimize tracking sediment onto roads.
 - c. Locate wheel wash or tire baths on site, if the stabilized construction entrance is not effective in preventing tracking sediment onto roads.
 - d. If sediment is tracked off site, clean the affected roadway thoroughly at the end of each day, or more frequently as necessary (for example, during wet weather). Remove sediment from roads by shoveling, sweeping, or pickup and transport of the sediment to a controlled sediment disposal area.
 - e. Conduct street washing only after sediment removal in accordance with Special Condition S9.D.2.d. Control street wash wastewater by pumping back on site or otherwise preventing it from discharging into systems tributary to waters of the State.
3. Control Flow Rates
 - a. Protect properties and waterways downstream of development sites from erosion and the associated discharge of turbid waters due to increases in the

velocity and peak volumetric flow rate of stormwater runoff from the project site, as required by local plan approval authority.

- b. Where necessary to comply with Special Condition S9.D.3.a, construct stormwater retention or detention facilities as one of the first steps in grading. Assure that detention facilities function properly before constructing site improvements (for example, impervious surfaces).
- c. If permanent infiltration ponds are used for flow control during construction, protect these facilities from siltation during the construction phase.

4. Install Sediment Controls

The Permittee must design, install and maintain effective erosion controls and sediment controls to minimize the discharge of pollutants. At a minimum, the Permittee must design, install and maintain such controls to:

- a. Construct sediment control BMPs (sediment ponds, traps, filters, infiltration facilities, etc.) as one of the first steps in grading. These BMPs must be functional before other land disturbing activities take place.
- b. Minimize sediment discharges from the site. The design, installation and maintenance of erosion and sediment controls must address factors such as the amount, frequency, intensity and duration of precipitation, the nature of resulting stormwater runoff, and soil characteristics, including the range of soil particle sizes expected to be present on the site.
- c. Direct stormwater runoff from disturbed areas through a sediment pond or other appropriate sediment removal BMP, before the runoff leaves a construction site or before discharge to an infiltration facility. Runoff from fully stabilized areas may be discharged without a sediment removal BMP, but must meet the flow control performance standard of Special Condition S9.D.3.a.
- d. Locate BMPs intended to trap sediment on site in a manner to avoid interference with the movement of juvenile salmonids attempting to enter off-channel areas or drainages.
- e. Provide and maintain natural buffers around surface waters, direct stormwater to vegetated areas to increase sediment removal and maximize stormwater infiltration, unless infeasible.
- f. Where feasible, design outlet structures that withdraw impounded stormwater from the surface to avoid discharging sediment that is still suspended lower in the water column.

5. Stabilize Soils

- a. The Permittee must stabilize exposed and unworked soils by application of effective BMPs that prevent erosion. Applicable BMPs include, but are not limited to: temporary and permanent seeding, sodding, mulching, plastic covering, erosion control fabrics and matting, soil application of polyacrylamide

(PAM), the early application of gravel base on areas to be paved, and dust control.

- b. The Permittee must control stormwater volume and velocity within the site to minimize soil erosion.
- c. The Permittee must control stormwater discharges, including both peak flow rates and total stormwater volume, to minimize erosion at outlets and to minimize downstream channel and stream bank erosion.
- d. Depending on the geographic location of the project, the Permittee must not allow soils to remain exposed and unworked for more than the time periods set forth below to prevent erosion:

West of the Cascade Mountains Crest

During the dry season (May 1 - September 30): 7 days

During the wet season (October 1 - April 30): 2 days

East of the Cascade Mountains Crest, except for Central Basin*

During the dry season (July 1 - September 30): 10 days

During the wet season (October 1 - June 30): 5 days

The Central Basin*, East of the Cascade Mountains Crest

During the dry season (July 1 - September 30): 30 days

During the wet season (October 1 - June 30): 15 days

*Note: The Central Basin is defined as the portions of Eastern Washington with mean annual precipitation of less than 12 inches.

- e. The Permittee must stabilize soils at the end of the shift before a holiday or weekend if needed based on the weather forecast.
 - f. The Permittee must stabilize soil stockpiles from erosion, protected with sediment trapping measures, and where possible, be located away from storm drain inlets, waterways, and drainage channels.
 - g. The Permittee must minimize the amount of soil exposed during construction activity.
 - h. The Permittee must minimize the disturbance of steep slopes.
 - i. The Permittee must minimize soil compaction and, unless infeasible, preserve topsoil.
6. Protect Slopes
- a. The Permittee must design and construct cut-and-fill slopes in a manner to minimize erosion. Applicable practices include, but are not limited to, reducing continuous length of slope with terracing and diversions, reducing slope steepness, and roughening slope surfaces (for example, track walking).

- b. The Permittee must divert off-site stormwater (run-on) or ground water away from slopes and disturbed areas with interceptor dikes, pipes, and/or swales. Off-site stormwater should be managed separately from stormwater generated on the site.
 - c. At the top of slopes, collect drainage in pipe slope drains or protected channels to prevent erosion.
 - i. West of the Cascade Mountains Crest: Temporary pipe slope drains must handle the peak 10-minute flow rate from a Type 1A, 10-year, 24-hour frequency storm for the developed condition. Alternatively, the 10-year, 1-hour flow rate predicted by an approved continuous runoff model, increased by a factor of 1.6, may be used. The hydrologic analysis must use the existing land cover condition for predicting flow rates from tributary areas outside the project limits. For tributary areas on the project site, the analysis must use the temporary or permanent project land cover condition, whichever will produce the highest flow rates. If using the Western Washington Hydrology Model (WWHM) to predict flows, bare soil areas should be modeled as "landscaped area."
 - ii. East of the Cascade Mountains Crest: Temporary pipe slope drains must handle the expected peak flow rate from a 6-month, 3-hour storm for the developed condition, referred to as the short duration storm.
 - d. Place excavated material on the uphill side of trenches, consistent with safety and space considerations.
 - e. Place check dams at regular intervals within constructed channels that are cut down a slope.
7. Protect Drain Inlets
- a. Protect all storm drain inlets made operable during construction so that stormwater runoff does not enter the conveyance system without first being filtered or treated to remove sediment.
 - b. Clean or remove and replace inlet protection devices when sediment has filled one-third of the available storage (unless a different standard is specified by the product manufacturer).
8. Stabilize Channels and Outlets
- a. Design, construct and stabilize all on-site conveyance channels to prevent erosion from the following expected peak flows:
 - i. West of the Cascade Mountains Crest: Channels must handle the peak 10-minute flow rate from a Type 1A, 10-year, 24-hour frequency storm for the developed condition. Alternatively, the 10-year, 1-hour flow rate indicated by an approved continuous runoff model, increased by a factor of 1.6, may be used. The hydrologic analysis must use the existing land

cover condition for predicting flow rates from tributary areas outside the project limits. For tributary areas on the project site, the analysis must use the temporary or permanent project land cover condition, whichever will produce the highest flow rates. If using the WWHM to predict flows, bare soil areas should be modeled as "landscaped area."

- ii. East of the Cascade Mountains Crest: Channels must handle the expected peak flow rate from a 6-month, 3-hour storm for the developed condition, referred to as the short duration storm.
- b. Provide stabilization, including armoring material, adequate to prevent erosion of outlets, adjacent stream banks, slopes, and downstream reaches at the outlets of all conveyance systems.

9. Control Pollutants

Design, install, implement and maintain effective pollution prevention measures to minimize the discharge of pollutants. The Permittee must:

- a. Handle and dispose of all pollutants, including waste materials and demolition debris that occur on site in a manner that does not cause contamination of stormwater.
- b. Provide cover, containment, and protection from vandalism for all chemicals, liquid products, petroleum products, and other materials that have the potential to pose a threat to human health or the environment. On-site fueling tanks must include secondary containment. Secondary containment means placing tanks or containers within an impervious structure capable of containing 110% of the volume contained in the largest tank within the containment structure. Double-walled tanks do not require additional secondary containment.
- c. Conduct maintenance, fueling, and repair of heavy equipment and vehicles using spill prevention and control measures. Clean contaminated surfaces immediately following any spill incident.
- d. Discharge wheel wash or tire bath wastewater to a separate on-site treatment system that prevents discharge to surface water, such as closed-loop recirculation or upland land application, or to the sanitary sewer with local sewer district approval.
- e. Apply fertilizers and pesticides in a manner and at application rates that will not result in loss of chemical to stormwater runoff. Follow manufacturers' label requirements for application rates and procedures.
- f. Use BMPs to prevent contamination of stormwater runoff by pH-modifying sources. The sources for this contamination include, but are not limited to: bulk cement, cement kiln dust, fly ash, new concrete washing and curing waters, recycled concrete stockpiles, waste streams generated from concrete grinding and sawing, exposed aggregate processes, dewatering concrete vaults, concrete

pumping and mixer washout waters. (Also refer to the definition for "concrete wastewater" in Appendix A--Definitions.)

- g. Adjust the pH of stormwater or authorized non-stormwater if necessary to prevent an exceedance of groundwater and/or surface water quality standards.
- h. Assure that washout of concrete trucks is performed off-site or in designated concrete washout areas only. Do not wash out concrete trucks or concrete handling equipment onto the ground, or into storm drains, open ditches, streets, or streams. Do not dump excess concrete on site, except in designated concrete washout areas. Concrete spillage or concrete discharge to surface waters of the State is prohibited.
- i. Obtain written approval from Ecology before using any chemical treatment, with the exception of CO₂ or dry ice used to adjust pH.
- j. Uncontaminated water from water-only based shaft drilling for construction of building, road, and bridge foundations may be infiltrated provided the wastewater is managed in a way that prohibits discharge to surface waters. Prior to infiltration, water from water-only based shaft drilling that comes into contact with curing concrete must be neutralized until pH is in the range of 6.5 to 8.5 (su).

10. Control Dewatering

- a. Permittees must discharge foundation, vault, and trench dewatering water, which have characteristics similar to stormwater runoff at the site, into a controlled conveyance system before discharge to a sediment trap or sediment pond.
- b. Permittees may discharge clean, non-turbid dewatering water, such as well-point ground water, to systems tributary to, or directly into surface waters of the State, as specified in Special Condition S9.D.8, provided the dewatering flow does not cause erosion or flooding of receiving waters. Do not route clean dewatering water through stormwater sediment ponds. Note that "surface waters of the State" may exist on a construction site as well as off site; for example, a creek running through a site.
- c. Other dewatering treatment or disposal options may include:
 - i. Infiltration.
 - ii. Transport off site in a vehicle, such as a vacuum flush truck, for legal disposal in a manner that does not pollute state waters.
 - iii. Ecology-approved on-site chemical treatment or other suitable treatment technologies (see S9.D.9.i. regarding chemical treatment written approval).
 - iv. Sanitary or combined sewer discharge with local sewer district approval, if there is no other option.

- v. Use of a sedimentation bag with discharge to a ditch or swale for small volumes of localized dewatering.
- d. Permittees must handle highly turbid or contaminated dewatering water separately from stormwater.

11. Maintain BMPs

- a. Permittees must maintain and repair all temporary and permanent erosion and sediment control BMPs as needed to assure continued performance of their intended function in accordance with BMP specifications.
- b. Permittees must remove all temporary erosion and sediment control BMPs within 30 days after achieving final site stabilization or after the temporary BMPs are no longer needed.

12. Manage the Project

- a. Phase development projects to the maximum degree practicable and take into account seasonal work limitations.
- b. Inspection and monitoring – Inspect, maintain and repair all BMPs as needed to assure continued performance of their intended function. Conduct site inspections and monitoring in accordance with Special Condition S4.
- c. Maintaining an updated construction SWPPP – Maintain, update, and implement the SWPPP in accordance with Special Conditions S3, S4 and S9.

13. Protect Low Impact Development (LID) BMPs

The primary purpose of LID BMPs/On-site LID Stormwater Management BMPs is to reduce the disruption of the natural site hydrology. LID BMPs are permanent facilities.

- a. Permittees must protect all Bioretention and Rain Garden facilities from sedimentation through installation and maintenance of erosion and sediment control BMPs on portions of the site that drain into the Bioretention and/or Rain Garden facilities. Restore the facilities to their fully functioning condition if they accumulate sediment during construction. Restoring the facility must include removal of sediment and any sediment-laden Bioretention/Rain Garden soils, and replacing the removed soils with soils meeting the design specification.
- b. Permittees must maintain the infiltration capabilities of Bioretention and Rain Garden facilities by protecting against compaction by construction equipment and foot traffic. Protect completed lawn and landscaped areas from compaction due to construction equipment.
- c. Permittees must control erosion and avoid introducing sediment from surrounding land uses onto permeable pavements. Do not allow muddy

construction equipment on the base material or pavement. Do not allow sediment-laden runoff onto permeable pavements.

- d. Permittees must clean permeable pavements fouled with sediments or no longer passing an initial infiltration test using local stormwater manual methodology or the manufacturer's procedures.
- e. Permittees must keep all heavy equipment off existing soils under LID facilities that have been excavated to final grade to retain the infiltration rate of the soils.

E. SWPPP – Map Contents and Requirements

The Permittee's SWPPP must also include a vicinity map or general location map (for example, a USGS quadrangle map, a portion of a county or city map, or other appropriate map) with enough detail to identify the location of the construction site and receiving waters within one mile of the site.

The SWPPP must also include a legible site map (or maps) showing the entire construction site. The following features must be identified, unless not applicable due to site conditions:

1. The direction of north, property lines, and existing structures and roads.
2. Cut and fill slopes indicating the top and bottom of slope catch lines.
3. Approximate slopes, contours, and direction of stormwater flow before and after major grading activities.
4. Areas of soil disturbance and areas that will not be disturbed.
5. Locations of structural and nonstructural controls (BMPs) identified in the SWPPP.
6. Locations of off-site material, stockpiles, waste storage, borrow areas, and vehicle/equipment storage areas.
7. Locations of all surface water bodies, including wetlands.
8. Locations where stormwater or non-stormwater discharges off-site and/or to a surface waterbody, including wetlands.
9. Location of water quality sampling station(s), if sampling is required by state or local permitting authority.
10. Areas where final stabilization has been accomplished and no further construction-phase permit requirements apply.
11. Location or proposed location of LID facilities.

S10. NOTICE OF TERMINATION

- A. The site is eligible for termination of coverage when it has met any of the following conditions:
1. The site has undergone final stabilization, the Permittee has removed all temporary BMPs (except biodegradable BMPs clearly manufactured with the intention for the material to be left in place and not interfere with maintenance or land use), and all stormwater discharges associated with construction activity have been eliminated; **or**
 2. All portions of the site that have not undergone final stabilization per Special Condition S10.A.1 have been sold and/or transferred (per General Condition G9), and the Permittee no longer has operational control of the construction activity; **or**
 3. For residential construction only, the Permittee has completed temporary stabilization and the homeowners have taken possession of the residences.
- B. When the site is eligible for termination, the Permittee must submit a complete and accurate Notice of Termination (NOT) form, signed in accordance with General Condition G2, to:

Department of Ecology
Water Quality Program – Construction Stormwater
PO Box 47696
Olympia, Washington 98504-7696

When an electronic termination form is available, the Permittee may choose to submit a complete and accurate Notice of Termination (NOT) form through the Water Quality Permitting Portal rather than mailing a hardcopy as noted above.

The termination is effective on the thirty-first calendar day following the date Ecology receives a complete NOT form, unless Ecology notifies the Permittee that the termination request is denied because the Permittee has not met the eligibility requirements in Special Condition S10.A.

Permittees are required to comply with all conditions and effluent limitations in the permit until the permit has been terminated.

Permittees transferring the property to a new property owner or operator/Permittee are required to complete and submit the Notice of Transfer form to Ecology, but are not required to submit a Notice of Termination form for this type of transaction.

GENERAL CONDITIONS

G1. DISCHARGE VIOLATIONS

All discharges and activities authorized by this general permit must be consistent with the terms and conditions of this general permit. Any discharge of any pollutant more frequent than or at a level in excess of that identified and authorized by the general permit must constitute a violation of the terms and conditions of this permit.

G2. SIGNATORY REQUIREMENTS

- A. All permit applications must bear a certification of correctness to be signed:
1. In the case of corporations, by a responsible corporate officer;
 2. In the case of a partnership, by a general partner of a partnership;
 3. In the case of sole proprietorship, by the proprietor; *or*
 4. In the case of a municipal, state, or other public facility, by either a principal executive officer or ranking elected official.
- B. All reports required by this permit and other information requested by Ecology (including NOIs, NOTs, and Transfer of Coverage forms) must be signed by a person described above or by a duly authorized representative of that person. A person is a duly authorized representative only if:
1. The authorization is made in writing by a person described above and submitted to Ecology.
 2. The authorization specifies either an individual or a position having responsibility for the overall operation of the regulated facility, such as the position of plant manager, superintendent, position of equivalent responsibility, or an individual or position having overall responsibility for environmental matters.
- C. Changes to authorization. If an authorization under paragraph G2.B.2 above is no longer accurate because a different individual or position has responsibility for the overall operation of the facility, a new authorization satisfying the requirements of paragraph G2.B.2 above must be submitted to Ecology prior to or together with any reports, information, or applications to be signed by an authorized representative.
- D. Certification. Any person signing a document under this section must make the following certification:
- “I certify under penalty of law, that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering information, the information submitted is, to the best of my

knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.”

G3. RIGHT OF INSPECTION AND ENTRY

The Permittee must allow an authorized representative of Ecology, upon the presentation of credentials and such other documents as may be required by law:

- A. To enter upon the premises where a discharge is located or where any records are kept under the terms and conditions of this permit.
- B. To have access to and copy – at reasonable times and at reasonable cost – any records required to be kept under the terms and conditions of this permit.
- C. To inspect – at reasonable times – any facilities, equipment (including monitoring and control equipment), practices, methods, or operations regulated or required under this permit.
- D. To sample or monitor – at reasonable times – any substances or parameters at any location for purposes of assuring permit compliance or as otherwise authorized by the Clean Water Act.

G4. GENERAL PERMIT MODIFICATION AND REVOCATION

This permit may be modified, revoked and reissued, or terminated in accordance with the provisions of Chapter 173-226 WAC. Grounds for modification, revocation and reissuance, or termination include, but are not limited to, the following:

- A. When a change occurs in the technology or practices for control or abatement of pollutants applicable to the category of dischargers covered under this permit.
- B. When effluent limitation guidelines or standards are promulgated pursuant to the CWA or Chapter 90.48 RCW, for the category of dischargers covered under this permit.
- C. When a water quality management plan containing requirements applicable to the category of dischargers covered under this permit is approved, *or*
- D. When information is obtained that indicates cumulative effects on the environment from dischargers covered under this permit are unacceptable.

G5. REVOCATION OF COVERAGE UNDER THE PERMIT

Pursuant to Chapter 43.21B RCW and Chapter 173-226 WAC, the Director may terminate coverage for any discharger under this permit for cause. Cases where coverage may be terminated include, but are not limited to, the following:

- A. Violation of any term or condition of this permit.
- B. Obtaining coverage under this permit by misrepresentation or failure to disclose fully all relevant facts.

- C. A change in any condition that requires either a temporary or permanent reduction or elimination of the permitted discharge.
- D. Failure or refusal of the Permittee to allow entry as required in RCW 90.48.090.
- E. A determination that the permitted activity endangers human health or the environment, or contributes to water quality standards violations.
- F. Nonpayment of permit fees or penalties assessed pursuant to RCW 90.48.465 and Chapter 173-224 WAC.
- G. Failure of the Permittee to satisfy the public notice requirements of WAC 173-226-130(5), when applicable.

The Director may require any discharger under this permit to apply for and obtain coverage under an individual permit or another more specific general permit. Permittees who have their coverage revoked for cause according to WAC 173-226-240 may request temporary coverage under this permit during the time an individual permit is being developed, provided the request is made within ninety (90) days from the time of revocation and is submitted along with a complete individual permit application form.

G6. REPORTING A CAUSE FOR MODIFICATION

The Permittee must submit a new application, or a supplement to the previous application, whenever a material change to the construction activity or in the quantity or type of discharge is anticipated which is not specifically authorized by this permit. This application must be submitted at least sixty (60) days prior to any proposed changes. Filing a request for a permit modification, revocation and reissuance, or termination, or a notification of planned changes or anticipated noncompliance does not relieve the Permittee of the duty to comply with the existing permit until it is modified or reissued.

G7. COMPLIANCE WITH OTHER LAWS AND STATUTES

Nothing in this permit will be construed as excusing the Permittee from compliance with any applicable federal, state, or local statutes, ordinances, or regulations.

G8. DUTY TO REAPPLY

The Permittee must apply for permit renewal at least 180 days prior to the specified expiration date of this permit. The Permittee must reapply using the electronic application form (NOI) available on Ecology's website. Permittees unable to submit electronically (for example, those who do not have an internet connection) must contact Ecology to request a waiver and obtain instructions on how to obtain a paper NOI.

Department of Ecology
Water Quality Program - Construction Stormwater
PO Box 47696
Olympia, Washington 98504-7696

G9. TRANSFER OF GENERAL PERMIT COVERAGE

Coverage under this general permit is automatically transferred to a new discharger, including operators of lots/parcels within a common plan of development or sale, if:

- A. A written agreement (Transfer of Coverage Form) between the current discharger (Permittee) and new discharger, signed by both parties and containing a specific date for transfer of permit responsibility, coverage, and liability (including any Administrative Orders associated with the Permit) is submitted to the Director; and
- B. The Director does not notify the current discharger and new discharger of the Director's intent to revoke coverage under the general permit. If this notice is not given, the transfer is effective on the date specified in the written agreement.

When a current discharger (Permittee) transfers a portion of a permitted site, the current discharger must also submit an updated application form (NOI) to the Director indicating the remaining permitted acreage after the transfer.

G10. REMOVED SUBSTANCES

The Permittee must not re-suspend or reintroduce collected screenings, grit, solids, sludges, filter backwash, or other pollutants removed in the course of treatment or control of stormwater to the final effluent stream for discharge to state waters.

G11. DUTY TO PROVIDE INFORMATION

The Permittee must submit to Ecology, within a reasonable time, all information that Ecology may request to determine whether cause exists for modifying, revoking and reissuing, or terminating this permit or to determine compliance with this permit. The Permittee must also submit to Ecology, upon request, copies of records required to be kept by this permit [40 CFR 122.41(h)].

G12. OTHER REQUIREMENTS OF 40 CFR

All other requirements of 40 CFR 122.41 and 122.42 are incorporated in this permit by reference.

G13. ADDITIONAL MONITORING

Ecology may establish specific monitoring requirements in addition to those contained in this permit by administrative order or permit modification.

G14. PENALTIES FOR VIOLATING PERMIT CONDITIONS

Any person who is found guilty of willfully violating the terms and conditions of this permit shall be deemed guilty of a crime, and upon conviction thereof shall be punished by a fine of up to ten thousand dollars (\$10,000) and costs of prosecution, or by imprisonment at the discretion of the court. Each day upon which a willful violation occurs may be deemed a separate and additional violation.

Any person who violates the terms and conditions of a waste discharge permit shall incur, in addition to any other penalty as provided by law, a civil penalty in the amount of up to ten thousand dollars (\$10,000) for every such violation. Each and every such violation shall be a separate and distinct offense, and in case of a continuing violation, every day's continuance shall be deemed to be a separate and distinct violation.

G15. UPSET

Definition – “Upset” means an exceptional incident in which there is unintentional and temporary noncompliance with technology-based permit effluent limitations because of factors beyond the reasonable control of the Permittee. An upset does not include noncompliance to the extent caused by operational error, improperly designed treatment facilities, inadequate treatment facilities, lack of preventive maintenance, or careless or improper operation.

An upset constitutes an affirmative defense to an action brought for noncompliance with such technology-based permit effluent limitations if the requirements of the following paragraph are met.

A Permittee who wishes to establish the affirmative defense of upset must demonstrate, through properly signed, contemporaneous operating logs or other relevant evidence that: 1) an upset occurred and that the Permittee can identify the cause(s) of the upset; 2) the permitted facility was being properly operated at the time of the upset; 3) the Permittee submitted notice of the upset as required in Special Condition S5.F, and; 4) the Permittee complied with any remedial measures required under this permit.

In any enforcement proceeding, the Permittee seeking to establish the occurrence of an upset has the burden of proof.

G16. PROPERTY RIGHTS

This permit does not convey any property rights of any sort, or any exclusive privilege.

G17. DUTY TO COMPLY

The Permittee must comply with all conditions of this permit. Any permit noncompliance constitutes a violation of the Clean Water Act and is grounds for enforcement action; for permit termination, revocation and reissuance, or modification; or denial of a permit renewal application.

G18. TOXIC POLLUTANTS

The Permittee must comply with effluent standards or prohibitions established under Section 307(a) of the Clean Water Act for toxic pollutants within the time provided in the regulations that establish those standards or prohibitions, even if this permit has not yet been modified to incorporate the requirement.

G19. PENALTIES FOR TAMPERING

The Clean Water Act provides that any person who falsifies, tampers with, or knowingly renders inaccurate any monitoring device or method required to be maintained under this permit shall, upon conviction, be punished by a fine of not more than \$10,000 per violation, or by imprisonment for not more than two years per violation, or by both. If a conviction of a person is for a violation committed after a first conviction of such person under this condition, punishment shall be a fine of not more than \$20,000 per day of violation, or imprisonment of not more than four (4) years, or both.

G20. REPORTING PLANNED CHANGES

The Permittee must, as soon as possible, give notice to Ecology of planned physical alterations, modifications or additions to the permitted construction activity. The Permittee should be aware that, depending on the nature and size of the changes to the original permit, a new public notice and other permit process requirements may be required. Changes in activities that require reporting to Ecology include those that will result in:

- A. The permitted facility being determined to be a new source pursuant to 40 CFR 122.29(b).
- B. A significant change in the nature or an increase in quantity of pollutants discharged, including but not limited to: for sites 5 acres or larger, a 20% or greater increase in acreage disturbed by construction activity.
- C. A change in or addition of surface water(s) receiving stormwater or non-stormwater from the construction activity.
- D. A change in the construction plans and/or activity that affects the Permittee's monitoring requirements in Special Condition S4.

Following such notice, permit coverage may be modified, or revoked and reissued pursuant to 40 CFR 122.62(a) to specify and limit any pollutants not previously limited. Until such modification is effective, any new or increased discharge in excess of permit limits or not specifically authorized by this permit constitutes a violation.

G21. REPORTING OTHER INFORMATION

Where the Permittee becomes aware that it failed to submit any relevant facts in a permit application, or submitted incorrect information in a permit application or in any report to Ecology, it must promptly submit such facts or information.

G22. REPORTING ANTICIPATED NON-COMPLIANCE

The Permittee must give advance notice to Ecology by submission of a new application or supplement thereto at least forty-five (45) days prior to commencement of such discharges, of any facility expansions, production increases, or other planned changes, such as process modifications, in the permitted facility or activity which may result in noncompliance with permit limits or conditions. Any maintenance of facilities, which might necessitate

unavoidable interruption of operation and degradation of effluent quality, must be scheduled during non-critical water quality periods and carried out in a manner approved by Ecology.

G23. REQUESTS TO BE EXCLUDED FROM COVERAGE UNDER THE PERMIT

Any discharger authorized by this permit may request to be excluded from coverage under the general permit by applying for an individual permit. The discharger must submit to the Director an application as described in WAC 173-220-040 or WAC 173-216-070, whichever is applicable, with reasons supporting the request. These reasons will fully document how an individual permit will apply to the applicant in a way that the general permit cannot. Ecology may make specific requests for information to support the request. The Director will either issue an individual permit or deny the request with a statement explaining the reason for the denial. When an individual permit is issued to a discharger otherwise subject to the construction stormwater general permit, the applicability of the construction stormwater general permit to that Permittee is automatically terminated on the effective date of the individual permit.

G24. APPEALS

- A. The terms and conditions of this general permit, as they apply to the appropriate class of dischargers, are subject to appeal by any person within 30 days of issuance of this general permit, in accordance with Chapter 43.21B RCW, and Chapter 173-226 WAC.
- B. The terms and conditions of this general permit, as they apply to an individual discharger, are appealable in accordance with Chapter 43.21B RCW within 30 days of the effective date of coverage of that discharger. Consideration of an appeal of general permit coverage of an individual discharger is limited to the general permit's applicability or nonapplicability to that individual discharger.
- C. The appeal of general permit coverage of an individual discharger does not affect any other dischargers covered under this general permit. If the terms and conditions of this general permit are found to be inapplicable to any individual discharger(s), the matter shall be remanded to Ecology for consideration of issuance of an individual permit or permits.

G25. SEVERABILITY

The provisions of this permit are severable, and if any provision of this permit, or application of any provision of this permit to any circumstance, is held invalid, the application of such provision to other circumstances, and the remainder of this permit shall not be affected thereby.

G26. BYPASS PROHIBITED

- A. Bypass Procedures

Bypass, which is the intentional diversion of waste streams from any portion of a treatment facility, is prohibited for stormwater events below the design criteria for

stormwater management. Ecology may take enforcement action against a Permittee for bypass unless one of the following circumstances (1, 2, 3 or 4) is applicable.

1. Bypass of stormwater is consistent with the design criteria and part of an approved management practice in the applicable stormwater management manual.
2. Bypass for essential maintenance without the potential to cause violation of permit limits or conditions.

Bypass is authorized if it is for essential maintenance and does not have the potential to cause violations of limitations or other conditions of this permit, or adversely impact public health.

3. Bypass of stormwater is unavoidable, unanticipated, and results in noncompliance of this permit.

This bypass is permitted only if:

- a. Bypass is unavoidable to prevent loss of life, personal injury, or severe property damage. "Severe property damage" means substantial physical damage to property, damage to the treatment facilities which would cause them to become inoperable, or substantial and permanent loss of natural resources which can reasonably be expected to occur in the absence of a bypass.
 - b. There are no feasible alternatives to the bypass, such as the use of auxiliary treatment facilities, retention of untreated wastes, maintenance during normal periods of equipment downtime (but not if adequate backup equipment should have been installed in the exercise of reasonable engineering judgment to prevent a bypass which occurred during normal periods of equipment downtime or preventative maintenance), or transport of untreated wastes to another treatment facility.
 - c. Ecology is properly notified of the bypass as required in Special Condition S5.F of this permit.
4. A planned action that would cause bypass of stormwater and has the potential to result in noncompliance of this permit during a storm event.

The Permittee must notify Ecology at least thirty (30) days before the planned date of bypass. The notice must contain:

- a. A description of the bypass and its cause.
- b. An analysis of all known alternatives which would eliminate, reduce, or mitigate the need for bypassing.
- c. A cost-effectiveness analysis of alternatives including comparative resource damage assessment.
- d. The minimum and maximum duration of bypass under each alternative.
- e. A recommendation as to the preferred alternative for conducting the bypass.

- f. The projected date of bypass initiation.
 - g. A statement of compliance with SEPA.
 - h. A request for modification of water quality standards as provided for in WAC 173-201A-110, if an exceedance of any water quality standard is anticipated.
 - i. Steps taken or planned to reduce, eliminate, and prevent reoccurrence of the bypass.
5. For probable construction bypasses, the need to bypass is to be identified as early in the planning process as possible. The analysis required above must be considered during preparation of the Stormwater Pollution Prevention Plan (SWPPP) and must be included to the extent practical. In cases where the probable need to bypass is determined early, continued analysis is necessary up to and including the construction period in an effort to minimize or eliminate the bypass.

Ecology will consider the following before issuing an administrative order for this type bypass:

- a. If the bypass is necessary to perform construction or maintenance-related activities essential to meet the requirements of this permit.
- b. If there are feasible alternatives to bypass, such as the use of auxiliary treatment facilities, retention of untreated wastes, stopping production, maintenance during normal periods of equipment down time, or transport of untreated wastes to another treatment facility.
- c. If the bypass is planned and scheduled to minimize adverse effects on the public and the environment.

After consideration of the above and the adverse effects of the proposed bypass and any other relevant factors, Ecology will approve, conditionally approve, or deny the request. The public must be notified and given an opportunity to comment on bypass incidents of significant duration, to the extent feasible. Approval of a request to bypass will be by administrative order issued by Ecology under RCW 90.48.120.

B. Duty to Mitigate

The Permittee is required to take all reasonable steps to minimize or prevent any discharge or sludge use or disposal in violation of this permit that has a reasonable likelihood of adversely affecting human health or the environment.

APPENDIX A – DEFINITIONS

AKART is an acronym for “all known, available, and reasonable methods of prevention, control, and treatment.” AKART represents the most current methodology that can be reasonably required for preventing, controlling, or abating the *pollutants* and controlling pollution associated with a discharge.

Applicable TMDL means a TMDL for turbidity, fine sediment, high pH, or phosphorus, which was completed and approved by EPA before January 1, 2016, or before the date the operator’s complete permit application is received by Ecology, whichever is later.

Applicant means an *operator* seeking coverage under this permit.

Benchmark means a *pollutant* concentration used as a permit threshold, below which a *pollutant* is considered unlikely to cause a water quality violation, and above which it may. When *pollutant* concentrations exceed benchmarks, corrective action requirements take effect. Benchmark values are not water quality standards and are not numeric effluent limitations; they are indicator values.

Best Management Practices (BMPs) means schedules of activities, prohibitions of practices, maintenance procedures, and other physical, structural and/or managerial practices to prevent or reduce the pollution of waters of the State. BMPs include treatment systems, operating procedures, and practices to control: *stormwater* associated with construction activity, spillage or leaks, sludge or waste disposal, or drainage from raw material storage.

Buffer means an area designated by a local *jurisdiction* that is contiguous to and intended to protect a sensitive area.

Bypass means the intentional diversion of waste streams from any portion of a treatment facility.

Calendar Day A period of 24 consecutive hours starting at 12:00 midnight and ending the following 12:00 midnight.

Calendar Week (same as **Week**) means a period of seven consecutive days starting at 12:01 a.m. (0:01 hours) on Sunday.

Certified Erosion and Sediment Control Lead (CESCL) means a person who has current certification through an approved erosion and sediment control training program that meets the minimum training standards established by Ecology (see BMP C160 in the SWMM).

Chemical Treatment means the addition of chemicals to *stormwater* and/or authorized non-stormwater prior to filtration and discharge to surface waters.

Clean Water Act (CWA) means the Federal Water Pollution Control Act enacted by Public Law 92-500, as amended by Public Laws 95-217, 95-576, 96-483, and 97-117; USC 1251 et seq.

Combined Sewer means a sewer which has been designed to serve as a sanitary sewer and a storm sewer, and into which inflow is allowed by local ordinance.

Common Plan of Development or Sale means a site where multiple separate and distinct *construction activities* may be taking place at different times on different schedules and/or by different contractors, but still under a single plan. Examples include: 1) phased projects and projects with multiple filings or lots, even if the separate phases or filings/lots will be constructed under separate contract or by separate owners (e.g., a development where lots are sold to separate builders); 2) a development plan that may be phased over multiple years, but is still under a consistent plan for long-term development; 3) projects in a contiguous area that may be unrelated but still under the same contract, such as construction of a building extension and a new parking lot at the same facility; and 4) linear projects such as roads, pipelines, or utilities. If the project is part of a common plan of development or sale, the disturbed area of the entire plan must be used in determining permit requirements.

Composite Sample means a mixture of grab samples collected at the same sampling point at different times, formed either by continuous sampling or by mixing discrete samples. May be "time-composite" (collected at constant time intervals) or "flow-proportional" (collected either as a constant sample volume at time intervals proportional to stream flow, or collected by increasing the volume of each aliquot as the flow increases while maintaining a constant time interval between the aliquots).

Concrete Wastewater means any water used in the production, pouring and/or clean-up of concrete or concrete products, and any water used to cut, grind, wash, or otherwise modify concrete or concrete products. Examples include water used for or resulting from concrete truck/mixer/pumper/tool/chute rinsing or washing, concrete saw cutting and surfacing (sawing, coring, grinding, roughening, hydro-demolition, bridge and road surfacing). When *stormwater* comes in contact with concrete wastewater, the resulting water is considered concrete wastewater and must be managed to prevent discharge to *waters of the State*, including *ground water*.

Construction Activity means land disturbing operations including clearing, grading or excavation which disturbs the surface of the land. Such activities may include road construction, construction of residential houses, office buildings, or industrial buildings, site preparation, soil compaction, movement and stockpiling of topsoils, and demolition activity.

Contaminant means any hazardous substance that does not occur naturally or occurs at greater than natural background levels. See definition of "*hazardous substance*" and WAC 173-340-200.

Contaminated Groundwater means groundwater which contains *contaminants*, *pollutants*, or *hazardous substances* that do not occur naturally or occur at levels greater than natural background.

Contaminated Soil means soil which contains *contaminants*, *pollutants*, or *hazardous substances* that do not occur naturally or occur at levels greater than natural background.

Demonstrably Equivalent means that the technical basis for the selection of all stormwater BMPs is documented within a SWPPP, including:

1. The method and reasons for choosing the stormwater BMPs selected.

2. The *pollutant* removal performance expected from the BMPs selected.
3. The technical basis supporting the performance claims for the BMPs selected, including any available data concerning field performance of the BMPs selected.
4. An assessment of how the selected BMPs will comply with state water quality standards.
5. An assessment of how the selected BMPs will satisfy both applicable federal technology-based treatment requirements and state requirements to use all known, available, and reasonable methods of prevention, control, and treatment (AKART).

Department means the Washington State Department of Ecology.

Detention means the temporary storage of *stormwater* to improve quality and/or to reduce the mass flow rate of discharge.

Dewatering means the act of pumping *ground water* or *stormwater* away from an active construction site.

Director means the Director of the Washington State Department of Ecology or his/her authorized representative.

Discharger means an owner or *operator* of any facility or activity subject to regulation under Chapter 90.48 RCW or the Federal Clean Water Act.

Domestic Wastewater means water carrying human wastes, including kitchen, bath, and laundry wastes from residences, buildings, industrial establishments, or other places, together with such ground water infiltration or surface waters as may be present.

Ecology means the Washington State Department of Ecology.

Engineered Soils means the use of soil amendments including, but not limited, to Portland cement treated base (CTB), cement kiln dust (CKD), or fly ash to achieve certain desirable soil characteristics.

Equivalent BMPs means operational, source control, treatment, or innovative BMPs which result in equal or better quality of stormwater discharge to *surface water* or to *ground water* than BMPs selected from the SWMM.

Erosion means the wearing away of the land surface by running water, wind, ice, or other geological agents, including such processes as gravitational creep.

Erosion and Sediment Control BMPs means BMPs intended to prevent erosion and sedimentation, such as preserving natural vegetation, seeding, mulching and matting, plastic covering, filter fences, sediment traps, and ponds. Erosion and sediment control BMPs are synonymous with stabilization and structural BMPs.

Federal Operator is an entity that meets the definition of “*Operator*” in this permit and is either any department, agency or instrumentality of the executive, legislative, and judicial branches of

the Federal government of the United States, or another entity, such as a private contractor, performing construction activity for any such department, agency, or instrumentality.

Final Stabilization (same as **fully stabilized** or **full stabilization**) means the establishment of a permanent vegetative cover, or equivalent permanent stabilization measures (examples of permanent non-vegetative stabilization methods include, but are not limited to riprap, gabions or geotextiles) which prevents erosion.

Ground Water means water in a saturated zone or stratum beneath the land surface or a surface waterbody.

Hazardous Substance means any dangerous or extremely hazardous waste as defined in RCW 70.105.010 (5) and (6), or any dangerous or extremely dangerous waste as designated by rule under chapter 70.105 RCW; any hazardous substance as defined in RCW 70.105.010(10) or any hazardous substance as defined by rule under chapter 70.105 RCW; any substance that, on the effective date of this section, is a hazardous substance under section 101(14) of the federal cleanup law, 42 U.S.C., Sec. 9601(14); petroleum or petroleum products; and any substance or category of substances, including solid waste decomposition products, determined by the director by rule to present a threat to human health or the environment if released into the environment. The term hazardous substance does not include any of the following when contained in an underground storage tank from which there is not a release: crude oil or any fraction thereof or petroleum, if the tank is in compliance with all applicable federal, state, and local law.

Injection Well means a well that is used for the subsurface emplacement of fluids. (See Well.)

Jurisdiction means a political unit such as a city, town or county; incorporated for local self-government.

National Pollutant Discharge Elimination System (NPDES) means the national program for issuing, modifying, revoking and reissuing, terminating, monitoring, and enforcing permits, and imposing and enforcing pretreatment requirements, under sections 307, 402, 318, and 405 of the Federal Clean Water Act, for the discharge of *pollutants* to surface waters of the State from point sources. These permits are referred to as NPDES permits and, in Washington State, are administered by the Washington State Department of Ecology.

Notice of Intent (NOI) means the application for, or a request for coverage under this general permit pursuant to WAC 173-226-200.

Notice of Termination (NOT) means a request for termination of coverage under this general permit as specified by Special Condition S10 of this permit.

Operator means any party associated with a construction project that meets either of the following two criteria:

- The party has operational control over construction plans and specifications, including the ability to make modifications to those plans and specifications; or

- The party has day-to-day operational control of those activities at a project that are necessary to ensure compliance with a SWPPP for the site or other permit conditions (e.g., they are authorized to direct workers at a site to carry out activities required by the SWPPP or comply with other permit conditions).

Permittee means individual or entity that receives notice of coverage under this general permit.

pH means a liquid's measure of acidity or alkalinity. A pH of 7 is defined as neutral. Large variations above or below this value are considered harmful to most aquatic life.

pH Monitoring Period means the time period in which the pH of *stormwater* runoff from a site must be tested a minimum of once every seven days to determine if *stormwater* pH is between 6.5 and 8.5.

Point Source means any discernible, confined, and discrete conveyance, including but not limited to, any pipe, ditch, channel, tunnel, conduit, well, discrete fissure, and container from which *pollutants* are or may be discharged to surface waters of the State. This term does not include return flows from irrigated agriculture. (See Fact Sheet for further explanation.)

Pollutant means dredged spoil, solid waste, incinerator residue, filter backwash, sewage, garbage, domestic sewage sludge (biosolids), munitions, chemical wastes, biological materials, radioactive materials, heat, wrecked or discarded equipment, rock, sand, cellar dirt, and industrial, municipal, and agricultural waste. This term does not include sewage from vessels within the meaning of section 312 of the CWA, nor does it include dredged or fill material discharged in accordance with a permit issued under section 404 of the CWA.

Pollution means contamination or other alteration of the physical, chemical, or biological properties of waters of the State; including change in temperature, taste, color, turbidity, or odor of the waters; or such discharge of any liquid, gaseous, solid, radioactive or other substance into any *waters of the State* as will or is likely to create a nuisance or render such waters harmful, detrimental or injurious to the public health, safety or welfare; or to domestic, commercial, industrial, agricultural, recreational, or other legitimate beneficial uses; or to livestock, wild animals, birds, fish or other aquatic life.

Process Wastewater means any water which, during manufacturing or processing, comes into direct contact with or results from the production or use of any raw material, intermediate product, finished product, byproduct, or waste product. If *stormwater* commingles with process wastewater, the commingled water is considered process wastewater.

Receiving Water means the waterbody at the point of discharge. If the discharge is to a *storm sewer system*, either surface or subsurface, the receiving water is the waterbody to which the storm system discharges. Systems designed primarily for other purposes such as for ground water drainage, redirecting stream natural flows, or for conveyance of irrigation water/return flows that coincidentally convey *stormwater* are considered the receiving water.

Representative means a *stormwater* or wastewater sample which represents the flow and characteristics of the discharge. Representative samples may be a grab sample, a time-proportionate *composite sample*, or a flow proportionate sample. Ecology's Construction Stormwater Monitoring Manual provides guidance on representative sampling.

Responsible Corporate Officer for the purpose of signatory authority means: (i) a president, secretary, treasurer, or vice-president of the corporation in charge of a principal business function, or any other person who performs similar policy- or decision-making functions for the corporation, or (ii) the manager of one or more manufacturing, production, or operating facilities, provided, the manager is authorized to make management decisions which govern the operation of the regulated facility including having the explicit or implicit duty of making major capital investment recommendations, and initiating and directing other comprehensive measures to assure long term environmental compliance with environmental laws and regulations; the manager can ensure that the necessary systems are established or actions taken to gather complete and accurate information for permit application requirements; and where authority to sign documents has been assigned or delegated to the manager in accordance with corporate procedures (40 CFR 122.22).

Sanitary Sewer means a sewer which is designed to convey domestic wastewater.

Sediment means the fragmented material that originates from the weathering and erosion of rocks or unconsolidated deposits, and is transported by, suspended in, or deposited by water.

Sedimentation means the depositing or formation of sediment.

Sensitive Area means a waterbody, wetland, stream, aquifer recharge area, or channel migration zone.

SEPA (State Environmental Policy Act) means the Washington State Law, RCW 43.21C.020, intended to prevent or eliminate damage to the environment.

Significant Amount means an amount of a *pollutant* in a discharge that is amenable to available and reasonable methods of prevention or treatment; or an amount of a *pollutant* that has a reasonable potential to cause a violation of surface or ground water quality or sediment management standards.

Significant Concrete Work means greater than 1000 cubic yards poured concrete used over the life of a project.

Significant Contributor of Pollutants means a facility determined by Ecology to be a contributor of a significant amount(s) of a *pollutant*(s) to waters of the State of Washington.

Site means the land or water area where any "facility or activity" is physically located or conducted.

Source Control BMPs means physical, structural or mechanical devices or facilities that are intended to prevent *pollutants* from entering *stormwater*. A few examples of source control

BMPs are erosion control practices, maintenance of stormwater facilities, constructing roofs over storage and working areas, and directing wash water and similar discharges to the *sanitary sewer* or a dead end sump.

Stabilization means the application of appropriate BMPs to prevent the erosion of soils, such as, temporary and permanent seeding, vegetative covers, mulching and matting, plastic covering and sodding. See also the definition of Erosion and Sediment Control BMPs.

Storm Drain means any drain which drains directly into a *storm sewer system*, usually found along roadways or in parking lots.

Storm Sewer System means a means a conveyance, or system of conveyances (including roads with drainage systems, municipal streets, catch basins, curbs, gutters, ditches, manmade channels, or storm drains designed or used for collecting or conveying *stormwater*. This does not include systems which are part of a *combined sewer* or Publicly Owned Treatment Works (POTW) as defined at 40 CFR 122.2.

Stormwater means that portion of precipitation that does not naturally percolate into the ground or evaporate, but flows via overland flow, interflow, pipes, and other features of a stormwater drainage system into a defined surface waterbody, or a constructed infiltration facility.

Stormwater Management Manual (SWMM) or Manual means the technical Manual published by Ecology for use by local governments that contain descriptions of and design criteria for BMPs to prevent, control, or treat *pollutants* in *stormwater*.

Stormwater Pollution Prevention Plan (SWPPP) means a documented plan to implement measures to identify, prevent, and control the contamination of point source discharges of *stormwater*.

Surface Waters of the State includes lakes, rivers, ponds, streams, inland waters, salt waters, and all other surface waters and water courses within the jurisdiction of the State of Washington.

Temporary Stabilization means the exposed ground surface has been covered with appropriate materials to provide temporary stabilization of the surface from water or wind erosion. Materials include, but are not limited to, mulch, riprap, erosion control mats or blankets and temporary cover crops. Seeding alone is not considered stabilization. Temporary stabilization is not a substitute for the more permanent "*final stabilization*."

Total Maximum Daily Load (TMDL) means a calculation of the maximum amount of a *pollutant* that a waterbody can receive and still meet state water quality standards. Percentages of the total maximum daily load are allocated to the various pollutant sources. A TMDL is the sum of the allowable loads of a single *pollutant* from all contributing point and nonpoint sources. The TMDL calculations must include a "margin of safety" to ensure that the waterbody can be protected in case there are unforeseen events or unknown sources of the *pollutant*. The calculation must also account for seasonable variation in water quality.

Transfer of Coverage (TOC) means a request for transfer of coverage under this general permit as specified by General Condition G9 of this permit.

Treatment BMPs means BMPs that are intended to remove *pollutants* from *stormwater*. A few examples of treatment BMPs are detention ponds, oil/water separators, biofiltration, and constructed wetlands.

Transparency means a measurement of water clarity in centimeters (cm), using a 60 cm transparency tube. The transparency tube is used to estimate the relative clarity or transparency of water by noting the depth at which a black and white Secchi disc becomes visible when water is released from a value in the bottom of the tube. A transparency tube is sometimes referred to as a “turbidity tube.”

Turbidity means the clarity of water expressed as nephelometric turbidity units (NTUs) and measured with a calibrated turbidimeter.

Uncontaminated means free from any contaminant. See definition of “*contaminant*” and WAC 173-340-200.

Waste Load Allocation (WLA) means the portion of a receiving water’s loading capacity that is allocated to one of its existing or future point sources of pollution. WLAs constitute a type of water quality based effluent limitation (40 CFR 130.2[h]).

Water-only Based Shaft Drilling is a shaft drilling process that uses water only and no additives are involved in the drilling of shafts for construction of building, road, or bridge foundations.

Water quality means the chemical, physical, and biological characteristics of water, usually with respect to its suitability for a particular purpose.

Waters of the State includes those waters as defined as “waters of the United States” in 40 CFR Subpart 122.2 within the geographic boundaries of Washington State and “waters of the State” as defined in Chapter 90.48 RCW, which include lakes, rivers, ponds, streams, inland waters, underground waters, salt waters, and all other surface waters and water courses within the jurisdiction of the state of Washington.

Well means a bored, drilled or driven shaft, or dug hole whose depth is greater than the largest surface dimension. (See Injection well.)

Wheel Wash Wastewater means any water used in, or resulting from the operation of, a tire bath or wheel wash (BMP C106: Wheel Wash), or other structure or practice that uses water to physically remove mud and debris from vehicles leaving a construction site and prevent track-out onto roads. When *stormwater* comes in contact with wheel wash wastewater, the resulting water is considered wheel wash wastewater and must be managed according to Special Condition S9.D.9.

APPENDIX B – ACRONYMS

AKART	All Known, Available, and Reasonable Methods of Prevention, Control, and Treatment
BMP	Best Management Practice
CESCL	Certified Erosion and Sediment Control Lead
CFR	Code of Federal Regulations
CKD	Cement Kiln Dust
cm	Centimeters
CTB	Cement-Treated Base
CWA	Clean Water Act
DMR	Discharge Monitoring Report
EPA	Environmental Protection Agency
ERTS	Environmental Report Tracking System
ESC	Erosion and Sediment Control
FR	Federal Register
LID	Low Impact Development
NOI	Notice of Intent
NOT	Notice of Termination
NPDES	National Pollutant Discharge Elimination System
NTU	Nephelometric Turbidity Unit
RCW	Revised Code of Washington
SEPA	State Environmental Policy Act
SWMM	Stormwater Management Manual
SWPPP	Stormwater Pollution Prevention Plan
TMDL	Total Maximum Daily Load
UIC	Underground Injection Control
USC	United States Code
USEPA	United States Environmental Protection Agency
WAC	Washington Administrative Code
WQ	Water Quality
WWHM	Western Washington Hydrology Model

APPENDIX C
POTW Discharge Monitoring Report

POTW Industrial Discharge Agreement
Discharge Monitoring Report

Project: Riverfront Park Redevelopment
Project ID:
IDA #: 16-C0701

Batch ID #1111008IN -

(Catch Basin ID - Date)

Date Discharged

Parameter	Analytical Method	Monitoring Results	Effluent Limit ¹	Effluent Limit Exceeded?
Arsenic	EPA 200.7		0.41 mg/L	
Benzene, toluene, ethylbenzene, and xylene (BTEX)	EPA 624		1.4 mg/L (sum total of the results)	
Cadmium	EPA 200.7		0.11 mg/L	
Total Chromium	EPA 200.7		5.0 mg/L	
Copper	EPA 200.7		1.9 mg/L	
Cyanide	EPA 335.4		1.9 mg/L	
Lead	EPA 200.7		0.32 mg/L	
Mercury	EPA 245.1		0.05 mg/L	
Nickel	EPA 200.7		3.98 mg/L	
Total Petroleum Hydrocarbons (TPH)	EPA 1664		Not to exceed 100 mg/L	
Silver	EPA 200.7		1.7 mg/L	
Zinc	EPA 200.7		5.6 mg/L	
pH	Calibrated Meter		5.0 - 12.0 su	
Molybdenum	EPA 200.7		1.5 mg/L	
Selenium	EPA 200.7		1.0 mg/L	
Flow	Calibrated Meter		250 gpm ²	
Batch Volume	NA		NA	NA

¹ All concentrations for metallic substances are for "total" metal concentrations.

² Discharge to the POTW during a storm event or when the chance of rain is equal to or greater than 50 percent at the time of the discharge is prohibited.

I hereby certify the result above are representative of the batch wastewater discharged to the POTW

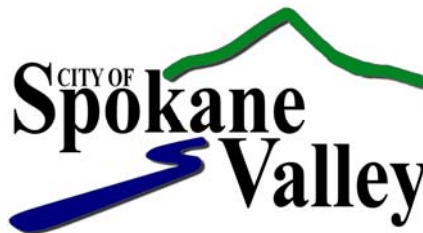
Please attach laboratory reports to this DMR before submitting to the City of Spokane Industrial Pretreatment Program

APPENDIX D
Post Construction Stormwater Treatment Design
Reference Materials

Spokane Regional Stormwater Manual



April 2008



- Projects that discharge to the subsurface and are located within the low susceptibility areas of the CARA and are not proposing moderate-use, high-use, or high-ADT sites; or,
- Projects discharging non-waste fluids from roofs (WAC 173-218) directly to drywells.

Oil Control Applicability: All projects that meet the regulatory threshold and are high-use or high-ADT areas are required to provide oil control. High-use sites generate high concentrations of petroleum hydrocarbons due to high traffic turnover or the frequent transfer of oil and/or other petroleum products.

High-use sites and high-ADT roadways and parking areas shall treat runoff from the high-use portion of the site prior to discharge or infiltration. For high-use sites located within a larger project area, only the impervious area associated with the high-use site is subject to oil control treatment, as long as the flow from that area is separated; otherwise the treatment controls shall be sized for the entire area.

Non-high-use sites and non-high ADT sites are exempt from oil treatment requirements.

Metals Treatment Applicability: Metals treatment is required for all projects that are moderate- or high-use sites, and for sites that discharge to a surface water or UIC facility and meet any of the following definitions:

- Industrial sites as defined by the EPA (40 CFR 122.26(b)(14)) with benchmark monitoring requirements for metals;
- Industrial sites that handle, store, produce, or dispose of metallic products or other materials, particularly those containing arsenic, cadmium, chromium, copper, lead, mercury, nickel or zinc;
- High-use or high-ADT roadways or parking areas;
- Urban roads with expected ADT greater than 7,500;
- Rural roads or freeways with expected ADT greater than 15,000;
- Commercial or industrial sites with an equivalent trip end (ETE) count equal to or greater than 40 vehicles per 1,000 square feet of gross building area;
- Parking lots with 100 ETE or more;
- Public on-street parking in commercial and industrial zones;
- Highway rest areas;
- Runoff from metal roofs not coated with an inert, non-leachable material; or

- Discharge to a surface water of the state that has been identified through a TMDL or other water clean-up plan as requiring metals removal.

Stormwater runoff is exempt from metals treatment requirements in the following situations, unless a specific water quality problem has been identified:

- Discharges to non-fish bearing streams;
- Subsurface discharges, unless identified as hydraulically connected to surface waters of the State; the Spokane Valley Rathdrum Prairie Aquifer is hydraulically connected to a surface water of the State;
- Restricted residential and employee-only parking areas, unless subject to through traffic;
- Preservation/maintenance projects and some improvement or safety enhancement projects that do not increase motorized vehicular capacities; and,
- Discharges to some Category 4 wetlands; contact the Washington Department of Ecology for additional information

Phosphorus Treatment Applicability: Phosphorus treatment is required where it has been determined by the federal, state, or local government that a water body is sensitive to phosphorus and that a reduction in phosphorus from new development and redevelopment is necessary to achieve the water quality standard to protect its beneficial uses. Where it is deemed necessary, a strategy will be adopted to achieve the reduction in phosphorus. The strategy will be based on knowledge of the sources of phosphorus and the effectiveness of the proposed methods of removing phosphorus.

Phosphorus treatment may be required for water bodies reported under Section 305(b) of the Clean Water Act and for those listed in Washington State's Non-point Source Assessment required under Section 319(a) of the Clean Water Act.

The Spokane River has been designated as not supporting beneficial uses due to phosphorus, and phosphorus treatment may be required.

Projects that do not propose to discharge to a water body sensitive to phosphorus are exempt from phosphorus treatment requirements.

6.5.3 METALS TREATMENT

Metals treatment facilities presented in this chapter are intended to achieve approximately 50% removal of dissolved metals. The following BMPs have been found to provide removal for metals:

- Significant removal:
 - Bio-infiltration swales; and,
 - Evaporation ponds designed using the Alternative Method (refer to Section 5.7.2)
- Lesser removal (this BMP shall not be used for high-use or high-ADT sites without being preceded by another treatment BMP)
 - Biofiltration channels.

6.5.4 PHOSPHOROUS TREATMENT

The phosphorus treatment facilities are intended to achieve a goal of 50% total phosphorus removal for a range of influent concentrations from 0.1 to 0.5 mg/L of total phosphorus. Bio-infiltration swales are the only BMP presented here that have been found to meet this removal goal for phosphorus. The following BMPs have been found to provide a lesser removal of phosphorus and shall only be used for phosphorus removal in combination with some other basic treatment BMP:

- Biofiltration channels;
- Vegetated buffer strips; and,
- Evaporation ponds designed using the Alternative Method (refer to Section 5.7.2)

6.6 APPLICABILITY

The exemptions listed in the sections below are superseded by requirements set forth in any applicable Total Maximum Daily Load (TMDL) or other water cleanup plan. At the time of the writing of this Manual, no TMDLs exist for water bodies in Spokane County. Contact the local jurisdiction for current information on whether any TMDLs have been issued.

Phosphorus treatment may be required for water bodies reported under Section 305(b) of the Clean Water Act, and for those listed in Washington State's Nonpoint Source Assessment required under Section 319(a) of the Clean Water Act.

The Spokane River has been designated as not supporting beneficial uses due to phosphorus, and phosphorus treatment may be required.

Exemptions

Projects that do not propose to discharge to a water body sensitive to phosphorus are exempt from phosphorus treatment requirements.

6.7 TREATMENT BMPS

Infiltration-based swales and ponds, filtration-based vegetated buffer strips and channels, and evaporative ponds can all be effective in treating stormwater runoff. In most cases, soil properties must be appropriate to achieve effective treatment without adversely impacting groundwater resources. The location and depth to bedrock, water table, or impermeable layers, and the proximity to wells, foundations, septic system drain-fields, and unstable slopes can preclude the use of infiltration. If a lined treatment facility is proposed, the soil properties are less important, as the treatment is meant to occur via containment, plant uptake, and evaporation of the pollutants within the area of the facility that does not drain.

Oil/water separators (OWS) can be used to physically separate petroleum products from stormwater. An OWS does not, however, meet the other treatment goals set forth in this Manual, so it may have to be used in combination with another water quality treatment BMP, depending upon the expected pollutants.

This section provides design information and minimum requirements for all treatment BMPs identified in this Manual except evaporation ponds; evaporation ponds are addressed in Chapter 7. Inspection and maintenance standards for treatment BMPs and information about tracts and easements are found in Chapter 11. Selection, establishment and maintenance criteria for treatment facility vegetated cover are discussed in Chapter 7.

6.7.1 BIO-INFILTRATION SWALES

Bio-infiltration swales (formerly referred to as grassed percolation areas (GPAs) or '208' swales) combine plant material and soil to remove stormwater pollutants by both physical and chemical (ionic bonding, decomposition, plant root uptake, etc.) means via filtration and percolation into the ground. Bio-infiltration swales are sized to treat the volume equivalent of the 6-month NRCS Type II 24-hour water quality design storm. If the bio-infiltration facility is designed to function as a flow control facility as well as a water quality treatment facility, it shall also accommodate the

flow control design storm event (refer to Section 2.2.4). If a bio-infiltration facility will also be used as a detention facility, refer to Section 7.3.2 for additional information.

Bio-Infiltration Swale Design

Bio-infiltration swales shall be sized using either Equation 6-1a or 6-1b. These equations estimate the volume required to treat stormwater runoff and were developed using the Alternate Hydrograph Method found in the *Stormwater Management Manual for Eastern Washington*.

$$V = 1133AP^{1.53} \quad (6-1a)$$

$$V = 1815AP^{1.53} \quad (6-1b)$$

Where: V = volume of bio-infiltration swale (cubic feet);
 A = hydraulically connected impervious area to be treated (acres); and,
 P = precipitation amount for the 6-month NRCS Type II 24 hour water quality design storm.

P shall be 1 inch for the all of the Spokane region, therefore the above equations can be simplified as follows:

$$V = 1133A \quad (6-1c)$$

$$V = 1815A \quad (6-1d)$$

Equations 6-1a and 6-1c can only be used when the following requirements are met, otherwise, Equations 6-1b and 6-1d shall be used:

- The subgrade soils have less than 12% fines; and,
- The subgrade soils have an infiltration rate greater than 0.15 in/hr.

Appendix 6A provides an example calculation for bioinfiltration swales.

Bio-Infiltration Swale Minimum Requirements

Bio-infiltration facilities shall meet the minimum requirements for limiting layers, setbacks, slopes, embankments, planting, and general requirements specified in Sections 7.5.2 and 7.8. In addition, the design of bio-infiltration swales shall conform to the requirements described below.

Treatment Design Depth and Soil Criteria: Bio-infiltration swales shall fully contain the design treatment volume with a maximum treatment design depth (from the swale

bottom to the elevation of the drywell grate or the first overflow or outflow mechanism) of 6 inches.

Organic matter content or cation exchange capacity (CEC) testing must be completed in order to substantiate the treatment soil composition. The tests shall be performed on composite samples taken from the treatment soil layer from the constructed pond bottom. A composite sample consists of well-mixed soil obtained from at least four cores, to a depth of at least 6 inches, randomly distributed over the pond bottom test area. A minimum of one test shall be performed for each bio-infiltration swale of 1,500 square feet or less, with one additional test for each additional 2,000 square feet of swale bottom or fraction thereof. "One test" is equal to four core samples taken uniformly over the percolation area. The soils will be considered suitable if the minimum criteria for CEC or soil organic matter content are met. Testing results shall be submitted as part of the construction certification process prior to the release of surety posted on project (contact the local jurisdiction for specific requirements).

Unless recommended otherwise by a geotechnical engineer, bio-infiltration swales shall be constructed with a treatment zone of medium- to well-draining soil (tested for infiltrative and treatment criteria) at least 12 inches thick, underlain by a subgrade infiltrative layer at least 48 inches thick. All soils, including amended native soils, shall meet the infiltrative rate criteria indicated in Table 6-1.

**TABLE 6-1
BIO-INFILTRATION SWALE DESIGN CRITERIA**

Criteria	Design Requirement
Treatment Zone Infiltration Rate (vegetated cover and treatment layer) ¹	Between 0.25 and 0.50 inches/hour
Subgrade Infiltration Rate ^{2,3}	At least 0.15 inches/hour and facility must completely drain within 72 hours
Average Cation Exchange Capacity	At least 15 milliequivalents/100 grams
Organic Matter Content	At least 2% by weight

¹ Sand and coarser soils are not suitable to be used as top soils when treatment is required.

² An infiltration test (for example, a single-ring infiltrometer test) demonstrating the facility's conformance to the infiltration rate criteria may be required prior to construction certification.

³ The 48-inch layer of infiltrative subgrade soils must meet the geotechnical recommendations as per the requirements found in Chapter 4.

Unless otherwise approved by the local jurisdiction, the treatment zone shall be planted with sod or dryland grass. Trees and large shrubs may be planted in the treatment zone provided they do not inhibit the growth of the grass. Contact the local jurisdiction for additional information. In all cases the plant materials shall meet the requirements of Section 7.8.9.

Inlets and Overflow: Curb inlets discharging into bio-infiltration swales shall be per the criteria specified in Chapter 8. A minimum separation of 3 inches shall be maintained between the flow line in the gutter (at the curb drop) or swale inlet and the top of the drywell grate. In addition, a 2-inch drop to the finish grade (of the swale side slope or swale bottom) below the concrete apron shall be provided to inhibit vegetation overgrowth and ensure positive flow into the swale.

A bypass or overflow structure to a flow control facility must be provided unless the treatment facility is able to accommodate the flow control design storm event as well as the water quality design storm event. Swales shall not be designed to overflow to a street unless approved by the local jurisdiction.

Construction and Inspection: In order to reduce the potential for over-compaction of the swale bottom, construction equipment and vehicles shall be kept off the treatment facility. Unless waived by the local jurisdiction, an infiltration test (for example, a single-ring infiltrometer test) demonstrating the facility's conformance to the infiltrative rate criteria is required prior to construction certification. The treatment facility must have vegetation established prior to passing final inspection. In addition, if during final inspection, it is found that the constructed bio-infiltration swale does not conform to the accepted design, the system shall be reconstructed so that it does comply.

6.7.2 BIOFILTRATION CHANNELS

Biofiltration is the simultaneous process of filtration, particle settling, adsorption, and biological uptake of pollutants in stormwater that occurs when runoff flows over and through vegetated areas. A biofiltration channel is a sloped, vegetated channel or ditch that both conveys and treats stormwater runoff. It does not provide flow control but can convey runoff to facilities designed for that purpose.

Biofiltration Channel Design

The following procedure shall be followed when designing biofiltration channels:

1. Determine the peak flow rate using the 6-month NRCS Type II 24-hour storm. The methods for calculating peak flow rates are found in Chapter 5. The 6-month precipitation is equal to $(0.69)(2\text{-year precipitation})$;
2. Determine the bottom width of the ditch using equation 6-2 or 6-3.

$$Q = \frac{1.486AR^{2/3}S^{1/2}}{n} \quad (6-2)$$

Where:

- Q = flow (cfs);
- A = cross-sectional area (square feet);
- R = hydraulic radius (feet); and,
- S = longitudinal slope of strip (feet/foot); slope criteria are given in the minimum geometry requirements in the following subsection; and,
- n = Manning's roughness coefficient; Use n = 0.30 for sod (or channels that will be mowed regularly) and higher values such as n = 0.20 for natural (less dense) vegetation such as meadow or pasture.

For a trapezoidal channel with shallow flow, the hydraulic radius can be approximated to the depth of flow. Using this assumption, the following can be used to solve for the required width:

$$B = \frac{\left(\frac{n}{1.486}\right)Q}{y^{5/3}S^{1/2}} - Zy \quad (6-3)$$

Where:

- B = bottom width of the strip (feet);
- n = Manning's roughness coefficient
- y = depth of flow (feet); (3 inches maximum for dryland grass and 4 inches maximum for sod);
- S = longitudinal slope of strip (feet/foot); slope criteria are given in the minimum geometry requirements in the following subsection;
- Z = side slope of the strip in the form Z:1; and,
- Q = flow (cfs).

3. Calculate the cross-sectional area of flow for the given channel;
4. Calculate the flow velocity. If the velocity is less than 1 foot/second, proceed to Step 5. Otherwise, change the channel dimensions and/or slope and return to Step 3; and,
5. Calculate the length of the channel and verify that the residence time is at least 9 minutes. The minimum channel length is 200 feet unless the width is increased per the minimum geometry requirements in the following subsection.

Commercially available software is most commonly used to compute many of the parameters associated with the sizing of a biofiltration channel. Appendix 6B provides an example calculation for biofiltration channels.

Biofiltration Channel Minimum Requirements

Biofiltration channels shall meet the minimum requirements found in Section 7.8, as well as the following geometry requirements:

- The biofiltration channel shall have a length of 200 feet. If a length of 200 feet is not possible, the width of the biofiltration channel must be increased so that the treatment area is the same as or more than it would be if a 200 foot length had been used. The length shall not be reduced such that the minimum residence time and/or maximum flow depth criteria are violated. The length shall in no case be less than 100 feet.
- The maximum bottom width is 10 feet and the minimum width is 1 foot. If the calculated bottom width exceeds 10 feet, parallel biofiltration channels shall be used in conjunction with a device that splits the flow and directs an equal amount to each channel.
- The ideal cross-section is a trapezoid with side slopes no steeper than 3:1. However, a rectangular shape can be proposed if there are topographical constraints or other construction concerns.
- Typically, the depth of flow shall not exceed 4 inches during the design storm. The depth of flow is 4 inches for sod and 3 inches for dryland grasses.
- The channel slope shall be at least 1% and no greater than 5%. Slopes of 2% to 4% provide the best performance. When slopes less than 2% are used, an under-drain is required. A 6-inch-diameter perforated pipe shall be installed in a trench lined with filter fabric and filled with 5/8-inch-minus round rocks. The pipe shall be placed at least 12 inches below the biofiltration channel bed and the bed shall incorporate topsoil that has a proportionately high sand content.
- The flow velocity shall not exceed 1 foot/second and the design shall provide for a 9 minute residence time.

6.7.3 VEGETATED BUFFER STRIPS

A vegetated buffer strip is a facility that is designed to provide stormwater quality treatment of conventional pollutants, but generally does not provide stormwater flow control.

Vegetated buffer strips are primarily used in rural areas adjacent to and parallel to paved areas such as parking lots or driveways, and along rural roadways where sheet

flow from the paved area will pass through the buffer strip before entering a conveyance system or a flow control facility or being dispersed into areas where it can be infiltrated or evaporated.

Vegetated buffer strips are used to intercept overland sheet flow runoff from adjacent impervious areas. They slow runoff velocities, filter out sediment and other pollutants, and provide infiltration into underlying soils. One challenge associated with vegetated buffer strips is the difficulty in maintaining sheet flow. Concentrated flows can short circuit the buffer strips which can then contribute to eroded rills or flow channels across the strips. This results in little or no treatment of stormwater runoff.

This BMP is acceptable for use on any rural project that meets the following general criteria:

- The flow from the roadway must enter the buffer strip as sheet flow. Thus, the vegetated buffer strips must not receive concentrated flow discharges.
- A maximum flow path (paved width) of 30 feet can contribute to a buffer strip designed via this method (vegetated buffer strips should typically not be proposed for super-elevated roads, unless the 30 foot width is adhered to);
- Buffer strips may be used where the roadway ADT is less than 30,000;
- The longitudinal slope of the contributing impervious drainage area (parallel to the edge of the buffer area) shall be 5% or less;
- The lateral slope of the contributing drainage area perpendicular to the pavement edge (typically referred to as the cross-slope of the road) shall be 2% or less.

Vegetated buffer strips shall be constructed after other portions of the project are completed.

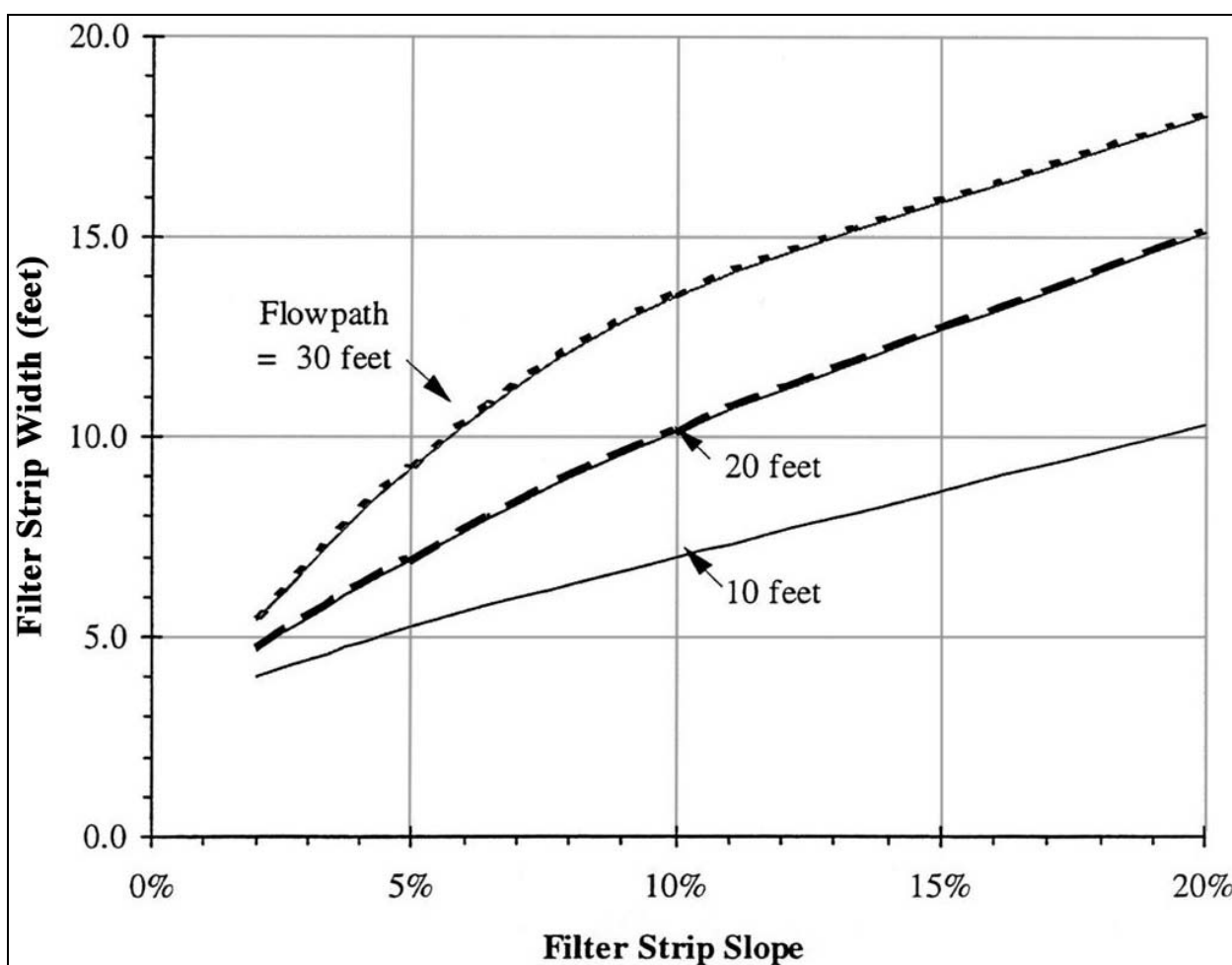
Vegetated Buffer Strip Design

This procedure is based on the narrow area filter strips presented in the 1998 *King County Surface Water Design Manual*. The sizing of the buffer strip is based on the length of the flow path draining to the buffer strip and the longitudinal slope of the buffer strip itself (parallel to the flow path). The following design steps shall be followed:

1. Determine the flow path length draining to the buffer strip. Normally this is the width of the paved area draining to the strip, but if the site is sloped, the flow path may be longer. For crowned roads, the flow path is the distance from the crown to the edge of pavement;

2. Determine the average lateral or cross slope of the buffer strip: Calculate the cross slope of the buffer strip (parallel to the flow path), averaged over the total width of the buffer strip. If the slope is less than 2%, use 2% for sizing purposes. The maximum cross slope allowed is 6:1 horizontal to vertical or 17%; and,
3. Determine the required width of the buffer strip: Use Figure 6-3 to size the buffer strip. To use the figure, find the curve representing the appropriate width of the flow path (interpolate between curves as necessary). Find the point along the curve where the design longitudinal or cross slope of the buffer strip is directly below and read the buffer strip width to the left on the y-axis. The buffer strip must be designed to provide this minimum width (W) along the entire stretch of pavement draining to it.

Appendix 6C provides an example calculation for vegetated buffer strips.



Source: King County Surface Water Design Manual, 1998.

Figure 6-3 – Vegetated Buffer Strip

Vegetated Buffer Strip Minimum Requirements

Vegetated buffer strips shall meet the minimum requirements for planting, and general requirements specified in Sections 7.5.2 and 7.8. In addition, the design of buffer strips shall conform to the following requirements (see Figure 6-4):

- Geometry:
 - The minimum required buffer strip width is: 4 feet for a 10-foot flow path; 4.5 feet for a 25 foot flow path; and 5.5 feet for a 30-foot flow path. Flow path is the width of the paved surface discharging to the buffer strip.
 - The cross-slope of the buffer strip shall be no steeper than 6:1.
 - Along roadways, buffer strips shall be placed at least 1 foot, and preferably 3 to 4 feet, from the edge of pavement, to accommodate a vegetation free zone.
- Energy Dissipation:
 - A gravel-filled trench shall be installed between the pavement surface and the buffer strip to maintain sheet flow. This area serves as a flow spreader and shall consist of a trench filled with crushed aggregate (WSDOT Crushed Aggregate Base Course or WSDOT Crushed Aggregate Top Course).
 - The gravel filled trench shall be a minimum of 12 inches deep and 18 inches wide.

6.7.4 OIL/WATER SEPARATORS

Three types of OWS are included in this Manual:

- Coalescing plate types (gravity mechanism for separation),
- Baffle types,
- Spill control separators, such as T's or elbows located inside a catch basin.

OWSs are only effective in achieving oil and TPH removal at the required levels when regular maintenance is provided. Without proper sludge, oil and sediment removal, there is a high potential for clogging which can impair the long-term efficiency of the separator.

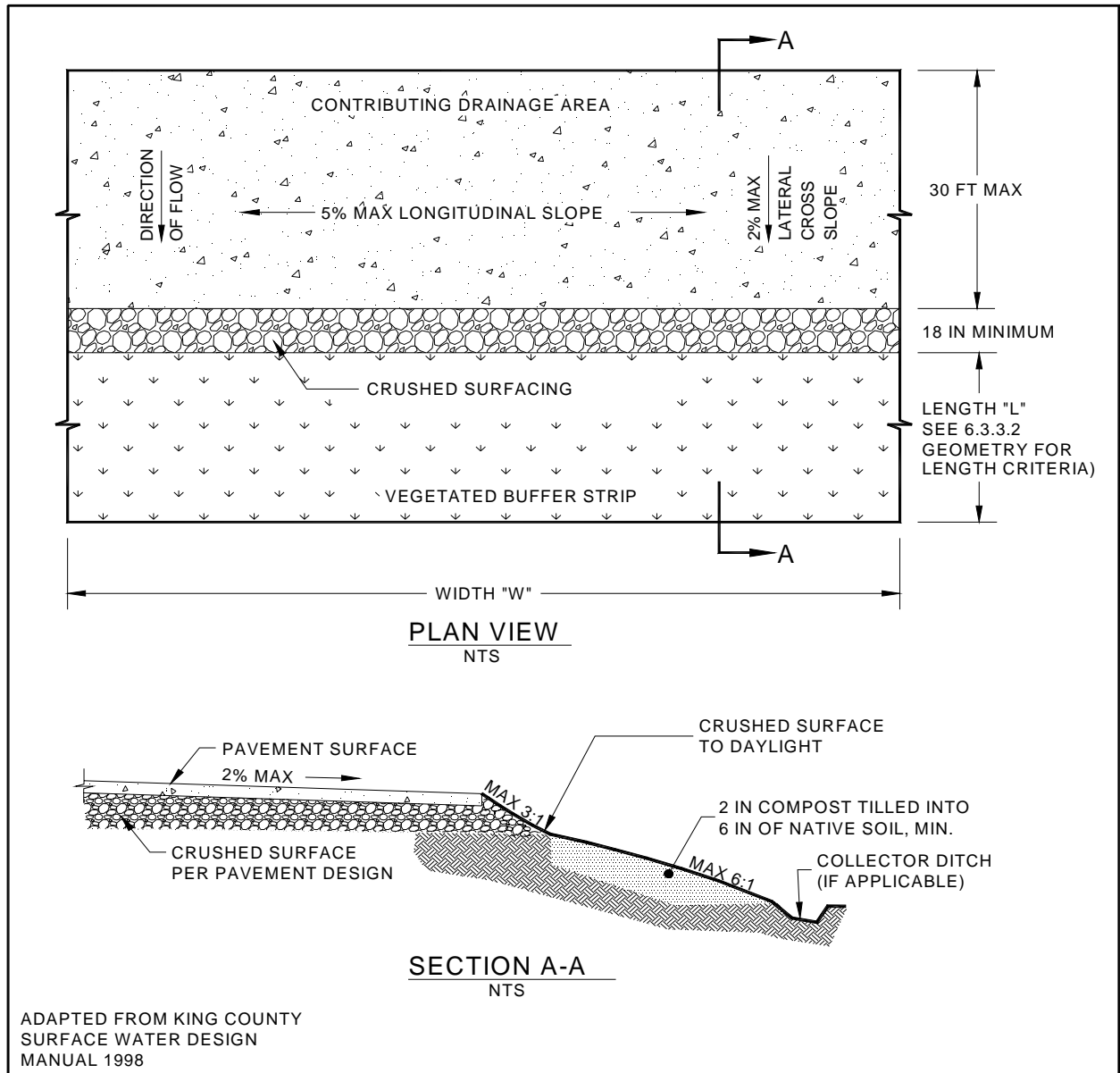


Figure 6-4 – Typical Vegetated Buffer Strip (details)

Oil/Water Separator Design

Detailed design information for coalescing plate and baffle type OWS can be found in Section 5.10.7 of the *Stormwater Management Manual for Eastern Washington*. Design information for spill control separators is presented in the minimum requirements subsection below.



May 2014

**GENERAL USE LEVEL DESIGNATION FOR BASIC (TSS), ENHANCED, &
PHOSPHORUS TREATMENT**

For

Washington State Department of Transportation's Media Filter Drain (MFD)

Ecology's Decision:

Based on the Washington State Department of Transportation (WSDOT) application submissions, Ecology hereby issues the following use level designations for the WSDOT Media Filter Drain (MFD):

- 1. A General Use Level Designation for Basic (TSS) Treatment.**
- 2. A General Use Level Designation for Enhanced Treatment.**
- 3. A General Use Level Designation for Phosphorus Treatment*.**
- 4. These General Use Level Designations have no expiration date but may be revoked or amended by Ecology, and are subject to the conditions specified below.**

*(*Alternative configurations with compost blanket do not have a General Use Level Designation for Phosphorus Treatment.)*

Ecology's Conditions of Use:

Design, install, and maintain media Filter Drains (Type 1, Type 2, and Type 3) to comply with these conditions:

- 1. Each MFD shall be designed as per Section 5-4.1.3 (RT.07 – Media Filter Drain) of the WSDOT 2014 Highway Runoff Manual (HRM).**
- 2. The MFD Ecology Mix will consist of materials identified in RT.07 of the WSDOT 2014 Highway Runoff Manual.**
- 3. Construct the MFD facility as per RT.07 of the WSDOT 2014 Highway Runoff Manual.**
- 4. Maintain the MFD facility per the maintenance standards for media filter drains in the WSDOT 2014 HRM.**
- 5. Follow any post publication updates to the HRM. You can find updates at the WSDOT HRM website:**
[http://www.wsdot.wa.gov/Environment/WaterQuality/Runoff/HighwayRunoffManual.](http://www.wsdot.wa.gov/Environment/WaterQuality/Runoff/HighwayRunoffManual)

6. WSDOT shall make readily available those documents deemed public information and make this information available upon request and in a timely manner.
7. Discharges from the MFD shall not cause or contribute to water quality standards violations in receiving waters.

Approved Alternate Configurations:

MFD (Type 1, Type 2, and Type 3) with 3-inch Medium Compost Blanket and Grass

1. The MFD with 3-inch medium compost blanket and grass over the grass strip and media mix zone provides additional flexibility to the stormwater best management practice (BMP). You can reduce noxious weeds and unwanted vegetation by placing a compost blanket and grass over the media mix zone.
2. The compost used for the 3-inch compost blanket will conform to WSDOT Standard Specification 9-14.4(8) for medium compost.
3. The MFD with 3-inch medium compost blanket and grass configuration does not have a General Use Level Designation for Phosphorous Treatment.
4. The MFD (Type 1, Type 2, and Type 3) shall be constructed without the 3-inch medium compost blanket and grass when discharging in phosphorous-sensitive areas or phosphorous total maximum daily load (TMDL) areas.

MFD end-of-pipe configuration (Type 4 and Type 5) with 3-inch Medium Compost Blanket and Grass

1. The MFD end-of-pipe configuration (Type 4 and Type 5) shall be designed, constructed, maintained, and consist of the materials as per Section 5-4.1.3 (RT.07 – Media Filter Drain) of the WSDOT 2014 Highway Runoff Manual (HRM)
2. The MFD Type 4 and Type 5 have the same compost blanket and grass requirements and use level designations as the MFD Type 1, Type 2, and Type 3, shown above.
3. The MFD Type 4 and Type 5 do not have a General Use Level Designation for Phosphorous Treatment.
4. Construct the MFD Type 4 and Type 5 without the 3-inch medium compost blanket and grass when discharging in phosphorous-sensitive areas or phosphorous total maximum daily load (TMDL) areas.

MFD end of pipe configuration (Type 6 and Type 7), downstream of a flow control BMP, with 3-inch Medium Compost Blanket and Grass

1. The MFD end-of-pipe configuration (Type 6 and Type 7), downstream of a flow control BMP shall be designed, constructed, maintained, and consist of the materials as per Section 5-4.1.3 (RT.07 – Media Filter Drain) of the WSDOT 2014 Highway Runoff Manual (HRM)
2. Construct the MFD Type 6 and Type 7 with the 3-inch medium compost blanket and grass and shall have the same compost blanket and grass requirements and use level designations as the MFD Type 1, Type 2, and Type 3, shown above.

3. The MFD Type 6 and Type 7 do not have a General Use Level Designation for Phosphorous Treatment.
4. Do not construct the MFD Type 6 and Type 7 in phosphorous-sensitive areas or phosphorous total maximum daily load (TMDL) areas.

Applicant: Washington State Department of Transportation (WSDOT)
Applicant's Address: Design Office
PO Box 47329
Olympia, WA 98504-7329

Application Documents:

- *Technology Evaluation and Engineering Report* : WSDOT Media Filter Drain; Prepared for Washington State Department of Transportation (Herrera Environmental Consultants, July 2006)
- *Technical Evaluation Report for the Media Filter Drain BMP Option: Downstream of Detention BMPs*: Prepared by the WSDOT I-405 Corridor Program, May 2013

Applicant's Use Level Request:

General Use Level Designation for Basic, Enhanced, and Phosphorus Treatment in accordance with Table 2 of Ecology's 2011 *Technical Guidance Manual for Evaluating Emerging Stormwater Treatment Technologies Technology Assessment Protocol – Ecology (TAPE)*.

For the alternative configuration of the MFD with 3-inch medium compost blanket and grass, General Use Level Designation for Basic and Enhanced Treatment in accordance with Table 2 of Ecology's 2011 *Technical Guidance Manual for Evaluating Emerging Stormwater Treatment Technologies Technology Assessment Protocol – Ecology (TAPE)*.

Applicant's Performance Claims:

The Media Filter Drain removes suspended solids, phosphorus*, and metals from highway runoff through physical straining, ion exchange, carbonate precipitation, and biofiltration. WSDOT expects the combination of treatment processes to achieve Ecology's treatment goals for basic, enhanced, and phosphorus* treatment. (*Alternative configurations with compost blanket do not remove phosphorus.)

Ecology's Recommendation:

Ecology finds:

Ecology expects the Media Filter Drain, when sized according to WSDOT RT.07, to provide effective stormwater treatment achieving Ecology's basic, enhanced, and phosphorus performance goals as demonstrated by field-testing performed in accordance with the TAPE

protocol; and Ecology deems the Media Filter Drain satisfactory with respect to factors other than treatment performance.

Findings of Fact:

1. WSDOT conducted water quality monitoring at the Media Filter Drain test site over a five-year period from 2001 to 2005.
2. WSDOT collected 25 sample events in three phases.
3. For the 12 storms with influent TSS concentrations less than 100 mg/L, the median influent was 59 mg/L and the median effluent was 3.9 mg/L. For the 13 storms with influent concentrations greater than 100 mg/L, the median percent removal was 96.0%.
4. For all storm events, the median percent removal of total phosphorus was 85.7% with a median influent of 0.234 mg/L.
5. For all storm events, the median percent removal of dissolved zinc was 80.8% with a median influent of 120 µg/L.
6. For all storm events, the median percent removal of dissolved copper was 40.8% with a median influent of 16 µg/L.
7. WSDOT performed a water budget analysis on the Media Filter Drain to determine if losses were occurring within the system due to infiltration, bypass, and/or evaporation. The percentage of influent accounted for in the effluent ranged from zero to 120 percent with a median of 38 percent. Bypassing the system did not likely cause water loss values because WSDOT only observed bypass on one occasion.

Technology Description:

The Media Filter Drain is a flow-through water quality treatment device developed for use where available right-of-way is limited and longitudinal gradients are less than 5%. The Media Filter Drain, which can be sited on both highway side slopes and medians, uses infiltration through a pervious, alkalinity-generating media, called the Media Filter Drain Mix, that was designed to remove suspended solids and soluble metals from highway runoff through physical straining, ion exchange, carbonate precipitation, and biofiltration. For illustrations, design specifications and maintenance criteria contact WSDOT.

Remaining Issues or Concerns about the MFD Technology:

1. Maintenance and replacement. How do pollutant removal efficiency and hydraulic capacity decrease over time, and at what point is maintenance or replacement required? WSDOT can accomplish this by periodic water quality testing at the SR 167 test site.
2. If possible, WSDOT should test a different MFD facility in the future. They should select the location to verify slope or soil-related siting limitations. The testing should carefully monitor water balance.

Contact Information:

Applicant: Mark Maurer

Highway Runoff Program Manager
(360) 705-7260
maurerm@wsdot.wa.gov

Applicant's Website: <http://www.wsdot.wa.gov/Environment/WaterQuality/default.htm>

Highway Runoff Manual Website:
<http://www.wsdot.wa.gov/Environment/WaterQuality/Runoff/HighwayRunoffManual.htm>

Ecology web link: <http://www.ecy.wa.gov/programs/wq/stormwater/newtech/technologies.html>

Ecology: Douglas C. Howie, P.E.
Department of Ecology
Water Quality Program,
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Revision History

Date	Revision
April 2007	Original Draft use-level-designation document
February 2010	Revised Ecology Contact Information
January 2013	Modified Design Storm Description, added Revision Table, Revised format to meet Ecology Standards
February 2013	Added MFD Alternative Configuration
March 2014	Updated HRM references to 2014, added MFD Type designations 1-7, and added descriptions for alternative configurations MFD Type 4, Type 5, Type 6, and Type 7.



August 2013

**GENERAL USE LEVEL DESIGNATION FOR BASIC (TSS) AND ENHANCED
(DISSOLVED METALS) TREATMENT
AND
CONDITIONAL USE LEVEL DESIGNATION FOR OIL TREATMENT**

For

**Washington State Department of Transportation's
Compost-Amended Biofiltration Swale**

Ecology's Decision:

Based on Washington State Department of Transportation's (WSDOT) application submissions, including the Final Technical Evaluation Report (TER) dated September 2011, Ecology hereby issues the following use level designations for the WSDOT Compost-Amended Biofiltration Swale (CABS):

1. A General Use Level Designation for Basic (TSS) Treatment.
2. A General Use Level Designation for Enhanced (dissolved metals) Treatment.
3. A Conditional Use Level Designation for Oil Treatment.
 - Design each compost-amended biofiltration swale as per Section 5-4.1.3 (RT.04 – Biofiltration Swale) of the WSDOT 2011 Highway Runoff Manual (HRM) with the addition of a 3-inch compost blanket.
 - The compost used for the 3-inch compost blanket will conform to WSDOT Standard Specification 9-14.4(8) for medium compost.
 - Contractors shall install the compost-amended biofiltration swale as per RT.04 of the WSDOT 2011 HRM with the addition of a 3-inch compost blanket.
4. Ecology approves CABS for treatment based on the water quality design flow rate per Section 4-3.1.1 of the WSDOT 2011 HRM. Calculate the water quality design flow rate using the following procedures:
 - Western Washington: For treatment installed upstream of detention or retention, the water quality design flow rate is the peak 15-minute flow rate as calculated using the latest version of the Western Washington Hydrology Model or other Ecology-approved continuous runoff model.
 - Eastern Washington: For treatment installed upstream of detention or retention, the water quality design flow rate is the peak 15-minute flow rate as calculated using one of the three methods described in Chapter 2.2.5 of the Stormwater Management Manual for Eastern Washington (SWMMEW) or local manual.
 - Entire State: For treatment installed downstream of detention, the water quality design flow rate is the full 2-year release rate of the detention facility.

5. The Conditional Use Level Designation expires on December 31, 2016 unless extended by Ecology, and is subject to the conditions specified below

Ecology's Conditions of Use:

Compost-Amended Biofiltration Swales shall comply with the following conditions:

1. Design, install, operate, and maintain the Compost-Amended Biofiltration Swales to comply with the 2011 HRM and the Ecology Decision.
2. Designers must follow any post publication updates to the HRM. You can find updates at the WSDOT HRM website:
<http://www.wsdot.wa.gov/Environment/WaterQuality/Runoff/HighwayRunoffManual.htm>
3. WSDOT commits to submitting a QAPP by December 31, 2013 for Ecology review and approval of a new test site that meets the TAPE requirements for attaining a GULD for Oil treatment. WSDOT must submit a QAPP and monitor a minimum of one site where the unit will provide phosphorus treatment.
4. WSDOT shall submit a TER for Ecology review for Oil treatment by December 31, 2015.
5. WSDOT shall make readily available those documents deemed public information and make this information available upon request and in a timely manner.
6. Designers shall not use the compost-amended biofiltration swale in phosphorous-sensitive areas or phosphorous total maximum daily load (TMDL) areas.
7. Discharges from the compost-amended biofiltration swale shall not cause or contribute to water quality standards violations in receiving waters.

Applicant: Washington State Department of Transportation (WSDOT)

Applicant's Address: Design Office
PO Box 47329
Olympia, WA 98504-7329

Application Documents:

- Washington State Department of Ecology Application for Pilot Use Level Designation, WSDOT (June 2010)
- Quality Assurance Project Plan WSDOT Compost-Amended Biofiltration Swale, WSDOT (September 22, 2008)
- Draft Compost-Amended Biofiltration Swale Evaluation Technical Evaluation Report, Herrera Environmental Consultants (April 2011)

- Final Compost-Amended Biofiltration Swale Evaluation Technical Evaluation Report, Herrera Environmental Consultants (September 2011)
- Responses to BER comments, WSDOT and Herrera Environmental Consultants (September 2011)

Applicant's Use Level Request:

General Level Use Designation for Basic, Enhanced, and Oil Treatment.

Applicant's Performance Claims:

Field testing shows that the compost-amended biofiltration swale can remove suspended solids, dissolved metals, and oil from highway runoff and can meet Ecology's performance goals for basic, enhanced, and oil treatment.

Ecology's Recommendations:

Ecology finds that:

Compost-Amended Biofiltration Swales, when sized according to WSDOT RT.04 (with the addition of the 3-inch compost blanket (WSDOT Standard Specification 9-14.4(8) for coarse compost) is able to demonstrate, through laboratory and field-testing, the ability to achieve Ecology's basic (TSS) and enhanced (dissolved metals) performance goals.

Ecology provides the opportunity for the Compost-Amended Biofiltration Swales, when sized according to WSDOT RT.04 (with the addition of the 3-inch compost blanket (WSDOT Standard Specification 9-14.4(8) for coarse compost) to demonstrate, through additional laboratory and field testing, if it can achieve Ecology's oil performance goals.

Findings of Fact:

1. WSDOT conducted field-testing at a compost-amended biofiltration swale and a control (standard) biofiltration swale installed in WSDOT right-of-way in the median of SR 518 in SeaTac, Washington.
2. WSDOT collected continuous flow and rainfall data over a 19-month period (March 2009 through September 2010). They obtained water quality data from 23 storm events over a 13-month period (May 2009 through June 2010), resulting in a total of 15 grab samples and 16 composite samples from each swale (15 of which were paired events at both biofiltration swales).
3. The compost-amended biofiltration swale performed significantly better than the control biofiltration swale for removal of the following parameters: total suspended solids (TSS), dissolved and total zinc, dissolved and total copper, and total petroleum hydrocarbons (TPH).
4. WSDOT collected a total of 15 valid TSS samples at the compost-amended biofiltration swale: 8 samples were in the 20 to 99 mg/L influent TSS range and 7 samples were in the

100 to 200 mg/L influent TSS range. Since WSDOT divided the sampled storm events evenly between the two influent ranges, WSDOT evaluated both performance goals for the entire dataset. The upper 95 percent confidence limit for the mean effluent TSS concentration was 6.0 mg/L. The lower 95 percent confidence limit for the mean TSS percent removal was 91 percent. The CABS met both basic treatment performance goals with the required statistical confidence.

5. WSDOT collected a total of 16 valid dissolved zinc samples at the compost-amended biofiltration swale. The compost-amended biofiltration swale had significantly higher removal rates for dissolved zinc than all seven BMP types evaluated from the International Stormwater Best Management Practice database (ISBMPD), the control biofiltration swale, the WSDOT Ecology Embankment (Media Filter Drain), and the Filterra Bioretention System. The mean percent removal of dissolved zinc for the compost-amended biofiltration swale was 82 percent (range of 69 to 91 percent).
6. WSDOT collected a total of 16 valid dissolved copper samples at the compost-amended biofiltration swale. The compost-amended biofiltration swale had significantly higher removal rates for dissolved copper than two of the six BMP types (grass swales and sand filters) evaluated from the ISBMPD and the control biofiltration swale. No significant difference was found between dissolved copper removal in the compost-amended biofiltration swale and the other four BMP types in the ISBMPD (grass strips, filters with peat mixed with sand, retention ponds, and retention vaults). The mean removal of dissolved copper for the compost-amended biofiltration swale was 22 percent (range of -44 to 74 percent).
7. WSDOT likely underestimated the dissolved copper removal for the compost-amended biofiltration swale during this study due to low influent dissolved copper concentrations at the SR 518 site. If WSDOT removes samples with influent concentrations less than 0.006 mg/L from the dataset, the recalculated mean removal of dissolved copper for the compost-amended biofiltration swale is 38 percent.
8. The influent TPH concentration was less than 10 mg/L for 14 out of the 15 grab samples collected at the compost-amended biofiltration swale. The upper 95 percent confidence limit for the mean effluent TPH concentration was 0.69 mg/L and the lower 95 percent confidence limit for the mean TPH percent removal was 73 percent. Visible oil sheen was not observed in any of the effluent samples. Despite lower TPH influent concentrations than those specified in the oil treatment performance goal for TAPE, the data show that the compost-amended biofiltration swale is capable of providing substantial treatment for TPH concentrations (mean percent removal = 81 percent) found in typical highway runoff.
9. There was no significant relationship between aliquot-weighted average flow rate and TSS removal, dissolved zinc removal, TPH removal, or effluent TPH concentration; demonstrating that the measured pollutant removal performance can be applied to the range of flow rates monitored during this study (0.010 to 0.078 cfs).
10. There was a significant positive relationship between the aliquot-weighted average flow rate and effluent TSS concentrations; however, the maximum TSS effluent concentration measured at the compost-amended biofiltration swale was below the 20 mg/L effluent goal at and above the design flow rate (0.03 cfs).

11. There was a significant negative relationship between the aliquot-weighted average flow rate and dissolved copper removal; however, dissolved copper percent removal is strongly related to the influent dissolved copper concentration. As the flow rate increases, the influent dissolved copper concentration decreases (i.e., becomes more dilute at higher flow rates). When influent dissolved copper concentrations less than 0.006 mg/L are removed from the dataset, the relationship is no longer significant.
12. The compost-amended biofiltration swale generally exported total phosphorus (TP) whereas the control biofiltration swale did not. Both the compost-amended biofiltration swale and control biofiltration swale exported soluble reactive phosphorus (SRP).

Remaining Issues or Concerns about the Compost-Amended Biofiltration Swale:

1. Maintenance and replacement. How do pollutant removal efficiency and hydraulic capacity decrease over time, and at what point is maintenance or replacement required?
2. If possible, WSDOT should test a different compost-amended biofiltration swale facility in the future. Select the location to verify slope or soil-related siting limitations. The testing should attempt to carefully monitor the water balance.
3. WSDOT should test a compost-amended biofiltration swale facility at a location of higher TPH influent concentration, such as petroleum storage and transfer facility or an area of parking/storage/maintenance of heavy vehicles and equipment.

Contact Information:

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Washington State Department of Transportation
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Applicant's Website: <http://www.wsdot.wa.gov/Environment/waterquality>

Highway Runoff Manual Website:
<http://www.wsdot.wa.gov/Environment/WaterQuality/Runoff/HighwayRunoffManual.htm>

Ecology web link: <http://www.ecy.wa.gov/programs/wq/stormwater/newtech/index.html>

Ecology: Douglas C. Howie, P.E.
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Revision History

Date	Revision
October 2011	Original Draft use-level-designation document: GULD for basic and dissolved metals (enhanced), CULD for Oil Treatment.
January 2013	Modified Design Storm Description, added Revision Table, revised format to comply with Ecology standard
August 2013	Revised QAPP, TER, and expiration dates for CULD

APPENDIX E

Report Limitations and Guidelines for Use

APPENDIX E

REPORT LIMITATIONS AND GUIDELINES FOR USE¹

This Appendix provides information to help you manage your risks with respect to the use of this report.

Read These Provisions Closely

Some clients, design professionals and contractors may not recognize that the geoscience practices (geotechnical engineering, geology and environmental science) are far less exact than other engineering and natural science disciplines. This lack of understanding can create unrealistic expectations that could lead to disappointments, claims and disputes. GeoEngineers includes these explanatory “limitations” provisions in our reports to help reduce such risks. Please confer with GeoEngineers if you are unclear how these “Report Limitations and Guidelines for Use” apply to your project or site.

Environmental Services Are Performed for Specific Purposes, Persons and Projects

This report has been prepared for the exclusive use of City of Spokane Parks and Recreation (Parks), their authorized agents and regulatory agencies. This report is not intended for use by others, and the information contained herein is not applicable to other sites.

GeoEngineers structures our services to meet the specific needs of our clients. For example, an environmental site assessment or remedial action study conducted for a property owner may not fulfill the needs of a prospective purchaser of the same property. Because each environmental study is unique, each environmental report is unique, prepared solely for the specific client and project site. No one except Parks should rely on this plan without first conferring with GeoEngineers. This report should not be applied for any purpose or project except the one originally contemplated.

This Environmental Report Is Based on a Unique Set of Project-Specific Factors

This report applies to the Riverfront Redevelopment Project in Spokane, Washington. GeoEngineers considered a number of unique, project-specific factors when establishing the scope of services for this project and report. Unless GeoEngineers specifically indicates otherwise, do not rely on this report if it was:

- not prepared for you,
- not prepared for your project,
- not prepared for the specific site explored, or
- completed before important project changes were made.

If important changes are made after the date of this remedial action plan, GeoEngineers should be given the opportunity to review our interpretations and recommendations and provide written modifications or confirmation, as appropriate.

¹ Developed based on material provided by ASFE, Professional Firms Practicing in the Geosciences; www.asfe.org.

Environmental Concerns are Not Covered

Unless environmental services were specifically included in GeoEngineers' scope of services, this report does not provide any environmental findings, conclusions, or recommendations, including but not limited to, the likelihood of encountering underground storage tanks or regulated contaminants.

Reliance Conditions for Third Parties

No third party may rely on the product of our services unless GeoEngineers agrees in advance, and in writing to such reliance. This is to provide our firm with reasonable protection against open-ended liability claims by third parties with whom there would otherwise be no contractual limits to their actions.

Environmental Regulations Are Always Evolving

Some substances may be present in the site vicinity in quantities or under conditions that may have led, or may lead, to contamination of the subject site, but are not included in current local, state or federal regulatory definitions of hazardous substances or do not otherwise present current potential liability. GeoEngineers cannot be responsible if the standards for appropriate inquiry, or regulatory definitions of hazardous substance, change or if more stringent environmental standards are developed in the future.

Uncertainty May Remain Even After This Report is Completed

Performance of environmental services is intended to reduce uncertainty regarding the potential for contamination in connection with a property, but no environmental assessment can wholly eliminate that uncertainty. Our interpretation of subsurface conditions in this study is based on field observations and chemical analytical data from widely spaced sampling locations. It is always possible that contamination exists in areas that were not explored, sampled or analyzed.

Subsurface Conditions Can Change

This environmental report is based on conditions that existed at the time the study was performed. The findings and conclusions of this report may be affected by the passage of time, by manmade events such as construction on or adjacent to the site, by new releases of hazardous substances, or by natural events such as floods, earthquakes, slope instability or groundwater fluctuations. Always contact GeoEngineers before applying this report to determine if it is still applicable.

Soil and Groundwater End Use

The cleanup criteria referenced in this report are site- and situation-specific. The cleanup criteria may not be applicable for other sites or for other on-site uses of the affected media (soil and/or groundwater). Note that hazardous substances may be present in some of the site soil and/or groundwater at detectable concentrations that are less than the referenced cleanup criteria. GeoEngineers should be contacted prior to the export of soil or groundwater from the subject site or reuse of the affected media on site to evaluate the potential for associated environmental liabilities. We cannot be responsible for potential environmental liability arising out of the transfer of soil and/or groundwater from the subject site to another location or its reuse on site in instances that we were not aware of or could not control.

Most Environmental Findings Are Professional Opinions

Our interpretations of subsurface conditions are based on field observations and chemical analytical data from widely spaced sampling locations at the site. Site exploration identifies subsurface conditions only at

those points where subsurface tests are conducted or samples are taken. GeoEngineers reviewed field and laboratory data and then applied our professional judgment to render an opinion about subsurface conditions throughout the site. Actual subsurface conditions may differ – sometimes significantly – from those indicated in this report. Our report, conclusions and interpretations should not be construed as a warranty of the subsurface conditions.

Geotechnical, Geologic and Geoenvironmental Reports Should Not Be Interchanged

The equipment, techniques and personnel used to perform an environmental study differ significantly from those used to perform a geotechnical or geologic study and vice versa. For that reason, a geotechnical engineering or geologic report does not usually relate any environmental findings, conclusions or recommendations; e.g., about the likelihood of encountering underground storage tanks or regulated contaminants. Similarly, environmental reports are not used to address geotechnical or geologic concerns regarding a specific project.

A Geotechnical Engineering or Geologic Report Could Be Subject to Misinterpretation

Misinterpretation of this report by members of the design team or by constructors can result in costly problems. GeoEngineers can help reduce the risks of misinterpretation by conferring with appropriate members of the design team after submitting the report, reviewing pertinent elements of the design team's plans and specifications, participating in pre-bid and preconstruction conferences, and providing construction observation.

Biological Pollutants

GeoEngineers' Scope of Work specifically excludes the investigation, detection, prevention or assessment of the presence of Biological Pollutants. Accordingly, this report does not include any interpretations, recommendations, findings, or conclusions regarding the detecting, assessing, preventing or abating of Biological Pollutants and no conclusions or inferences should be drawn regarding Biological Pollutants, as they may relate to this project. The term "Biological Pollutants" includes, but is not limited to, molds, fungi, spores, bacteria, and viruses, and/or any of their byproducts.

If the client desires these specialized services, they should be obtained from a consultant who offers services in this specialized field.

Have we delivered World Class Client Service?

Please let us know by visiting [**www.geoengineers.com/feedback**](http://www.geoengineers.com/feedback).

